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AN EPIDEMIOLOGICAL INVESTIGATION OF TUBERCULOUS MENINGITIS IN THE WESTERN PROVINCE OF THE CAPE OF GOOD HOPE*

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Although there have always been sporadic reports of spontaneous cures in tuberculous meningitis, up to a few years ago this diagnosis almost invariably meant death within a few weeks or months.

The therapeutic use of Streptomycin and other agents in this disease has created new hope for these patients and has stimulated tremendous interest in all aspects of the disease.

Some idea of the near epidemic proportions this disease assumes in the Cape Town area is obtained from the fact that for purposes of the present investigation 200 cases of tuberculous meningitis were collected in 13 months, and when it is realized that this disease claims most of its victims during the first decade of life, its importance becomes manifest.

The establishment of the epidemiology of the disease entails a knowledge of the types of infecting organisms, and this country has lagged far behind most others, especially the British Isles, in ascertaining the part played by the bovine tubercle bacillus in human disease. Certainly in the Western Province of the Cape no investigation of this nature has ever been reported, quite apart from any such attempt specifically directed towards tuberculous meningitis.

SOURCE AND NATURE OF BACTERIOLOGICAL MATERIAL

This investigation was commenced in June 1950, and all the bacteriological material had been collected by July 1951.

As a result of this work having been done in a Public Health Laboratory practically every case positively diagnosed in the Western Province was investigated and it is thus possible to claim that results reflect a reasonably true picture of the disease as occurring during the period of investigation.

Conclusions are based on results obtained from cultures of organisms derived from 200 individual cases of tuberculous meningitis, 163 cases of which originated in the Cape Peninsula and 37 cases in various towns of the Western Province of the Cape of Good Hope.

The racial and age distribution of the cases is set out in Table I.

The preponderance of Cape Coloureds in this series is very striking and can be correlated with the social and economic conditions under which they exist. This state of affairs is well illustrated in the present series. One hundred and thirty-two of the cases occurred in the Cape Town Municipal area, which has a European population roughly equivalent to that of the non-European population, and the ratio of non-European to European cases in the latter area was 31 : 2.

Eighty-nine (44.5%) of the 200 cases were males.

During life the material investigated was cerebrospinal fluid. With cases dying before fluid could be obtained (6 cases), or before ante-mortem cultures were known to be positive (31 cases), post-mortem isolation was attempted. This material consisted of cisternal or ventricular fluid and exudate obtained either by swabbing the base of the brain with an ordinary throat swab or simply by cutting a portion of it away.

Isolation of Organisms. Isolation of causal organisms from each individual case was done by means of guinea-pig inoculation and direct cultural methods on glycerine-free media. Details have been described elsewhere (Coetzee [1]) and will not be discussed further.

Results of Isolation. By employing both methods of isolation the causal organisms of 200 individual cases were isolated out of a total of 202 attempts.

The 2 failures were negative by both methods of isolation although acid and alcohol fast bacilli morphologically resembling *M. tuberculosis* were eventually found on direct microscopy of the cerebrospinal fluid and subsequent necropsies on these 2 patients confirmed the diagnosis of tuberculous meningitis which was thus missed by both methods of isolation.

Type Determination of Organisms. Details regarding this procedure have been recorded elsewhere (Coetzee [1]) and it will suffice to state that each organism isolated on glycerine-free media was classified according to quantity of growth on glycerine and non-glycerine containing egg and potato media, pigment production on these media, as well as virulence for the guinea pig and rabbit.

Results of Type Determination. Results of typing 198 of the 200 different strains isolated can be stated quite briefly as they were all typically human in type—eugonic, glycerophyllic, pigmentation on potato and produced disseminated fatal disease in guinea pigs and minimal retrogressive lesions in rabbits in recognized dosages. Organisms isolated from the two remaining cases of tuberculous meningitis were typically bovine in type in that they were dysgonic, glycerophobic, failed to produce pigment on potato media and caused disseminated fatal disease in guinea pigs and rabbits in recognized dosages.

Mammalian types of tubercle bacilli were thus responsible for all 200 cases investigated. The bovine type comprised only 2 cases, i.e. 1%.

* Based on part of a thesis accepted for the M.D. degree, University of Cape Town, December, 1952.

TABLE I: RACIAL AND AGE INCIDENCE OF BACTERIOLOGICAL MATERIAL.

	Age in Years																					
Race	*Total*	0–1	1–2	2–3	3–4	4–5	5–6	6–7	7–8	8–9	9–10	10–11	11–12	12–13	13–14	14–15	15–16	16–17	17–18	20–30	30–40	*above 40*
Europeans	16	6	2	—	1	1	1	—	—	—	—	1	—	1	—	1	—	—	1	—	1	
Asiatics	3	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—	—	—	1
Natives	17	4	4	1	1	1	3	—	—	1	—	—	—	—	—	—	—	—	—	2	—	—
Coloureds	164	38	46	20	11	8	10	4	4	1	3	1	1	5	1	—	2	1	2	5	1	—
Total	200	48	52	21	13	10	14	4	4	2	4	2	1	7	1	1	2	1	3	7	2	1
% of Total		24	26	10·5	6·5	5	7	2	2	1	2	1	15	3·5	·5	·5	1	·5	1·5	3·5	1	·5

EPIDEMIOLOGY

Only human and bovine types of tubercle bacilli will be discussed here. The avian type may be dismissed owing to the great rarity of this type of infection in the human subject (Feldman [2]) and because it was not encountered in this investigation.

Without citing any of the extensive literature brought to bear on this particular problem, it can be stated quite definitely that, apart from the rare congenital form of transmission, the human type of bacillus passes from man to man only by droplet and dust infection and it is for this reason that infection with this type of bacillus is usually, though by no means invariably, respiratory in nature (Blacklock [3]) and tends to occur most frequently where susceptible and tuberculous individuals come into close and repeated contact with one another.

Infection with the bovine type of bacillus is found chiefly in cattle though many other types of animal, including man, are liable to infection.

The chief mode of spread amongst cattle is also by means of droplet infection and thus, as in man, the primary lesion in bovines is also most frequently found in the respiratory system (Blacklock [3]).

Man is infected with bovine bacilli chiefly through ingestion of contaminated milk though airborne infection is also possible, as is well exemplified in the cases of bovine conjunctival tuberculosis in Danish milkers reported by Jensen *et al.*[4] and pulmonary tuberculosis reported by Sigurdsson.[5] The cycle of infection, however, does not stop there, and it has been observed that pulmonary bovine infection may pass back from man to cattle (Griffith and Munro [6]; Tice [7]) and also from man to man (Jensen *et al.*[4]).

Tubercle bacilli must frequently be inhaled without producing any recognizable lesions. Tuberculosis is a universal disease making the chances of infection enormous and what prevents the disease from assuming epidemic proportions must simply be the native or acquired resistance, or both, of individuals, although the true nature of these factors is still obscure. What however is known and has been abundantly proved, is the fact that it is possible to break down these powers of resistance, be they natural or acquired, by exposure to massive doses of tubercle bacilli, by the presence of other diseases, by malnutrition and by overwork. Add to these the factors of overcrowding and ignorance of the disease, and we have the exact position reigning in the homes of the vast majority of the patients investigated in this work.

Tuberculous meningitis being a metastatic (i.e. secondary) phenomenon to the infection in the lungs or alimentary canal, its occurrence implies some failure of localization at those sites and the frequent association of meningitis with an active primary complex has been attributed (Rich and McCordock [8]) to lack of sufficient acquired resistance. Associated with this of course is the fact that young children being relatively immobile, if exposed at all, are usually exposed to massive and repeated household infections. This, in conjunction with the frequent debilitating diseases encountered in the young (which have a definite, though as yet unexplained effect on resistance) and the possibility of native resistance being less at that age, help to explain the disproportionately high incidence of meningitis in the very young.

Although females predominate slightly in this small series (55.5%), Schwarz [9] in a review of 22,489 cases of tuberculous meningitis described in the literature, found males to constitute 51.5% of cases.

In an analysis of 815 cases of tuberculous meningitis positively diagnosed at the Union Health Laboratories, Cape Town, between the years 1946 and 1951 a slight seasonal incidence of the disease is noted. More cases tend to occur in the late winter and spring months and is in conformity with the findings of Schwarz [9] who, in an analysis of 11,332 cases reported in the literature, found the highest incidence to be in the late winter and spring months. This is possibly accounted for by the fact that confinement in poorly ventilated houses and rooms during the winter accounts for more primary infections, which terminate as meningitis in the spring. The lack of essential nutrients at the end of winter and the frequent respiratory infections present at that time of the year tend to weaken the general resistance, and may also be factors accounting for the slight seasonal incidence of the disease.

Tubercle bacilli isolated from the cerebrospinal fluid have been typed by numerous workers in all parts of the world and the human type of bacillus has invariably been encountered more frequently than the bovine bacillus. Some of these results are listed in Table II.

In America where an extensive campaign at eradication of bovine tuberculosis was instituted in 1917, human bovine infection is unknown at present (Palmer [18]).

The South African literature [19-22] records the type

TABLE II: HUMAN BOVINE INFECTION RATES IN VARIOUS COUNTRIES

Country and Period of Investigation	*Source of Material*	*Number of Cases Investigated*	*% Bovine Infection*
Scotland[10] (1943—44)	C.S.F.	560	11·0
England[11] (1943—45)	C.S.F.	254	28·0
Wales[11] (1943—45) ..	C.S.F.	69	10·0
North Ireland[12] (1950)	C.S.F.	245	3·3
India[13] (1933) ..	Extrapulmonary tuberculosis	60	0·0
Japan[14] (1939) ..	Extrapulmonary tuberculosis	1323	0·98
Australia[15, 16, 17] (1924—41)	C.S.F.	80	5·0

determination of 243 strains of tubercle bacilli, 195 of which were derived from extra-pulmonary sources. Only 2 strains were found to be bovine in type.

As far as results of the present investigation are concerned, the incidence of bovine infection in non-European cases of tuberculous meningitis is 2 in 184 or 1.1%, while the Europeans in this area have a rate of 0 in 16 or 0%.

That the incidence of bovine meningitis in the non-European population in this area must be very low and actually approximate to the figure obtained, can be deduced from the theoretical assumption that the true incidence is actually as high as 5%, under which circumstances the chance of not finding more than 2 bovine cases in a series of 184 cases of meningitis becomes 1 in 219. It is thus reasonable to infer that the true incidence is substantially less than 5%.

On the other hand the finding of no bovine strains in the series of 16 European cases investigated, does not allow such inferences regarding the true incidence of European bovine meningitis to be made. Assuming the true incidence to be only 5%, the chance of not encountering a bovine infection in the 16 cases examined is then actually as high as 44%. Even with a European bovine rate of 10% in this area, there is still an 18.5% chance of not striking a single bovine infection in the small series examined.

What then is the explanation of the difference existing between the incidence of bovine tuberculous meningitis in the Cape (1%) and that of the British Isles? Considering the position of the Coloureds (who form 82% of the cases), the tuberculous meningitis mortality rate existing amongst them in the Cape Province in 1947 (the most recent Annual Report of the Union Department of Health[22]) is 17.9 per 100,000 of the population, as compared with 3.6 per 100,000 for England and Wales (Report of the Ministry of Health for the year ended 31 March 1948[24]) and 0.7 per 100,000 for the United States of America (Federal Security Agency National Office of Vital Statistics[25]) over the same period of time.

This disparity is reflected in the differences existing between the respiratory death rates for tuberculosis amongst these groups of people: 208.2 per 100,000 for the Coloureds in the Cape Province (1947), as compared with 46.8 per 100,000 for England and Wales and 31 per 100,000 of the population in the U.S.A., for 1947.

Although the incidence of bovine infections in pulmonary tuberculosis in the Coloured population is not known, judging from results of other countries, it must be very low indeed and one can expect the majority of meningeal infections amongst the Coloureds, living as they do in crowded slum conditions, to be human in type, resulting from the tremendous reservoir of pulmonary tuberculosis existing in this section of the community, coupled with the fact (to be further elaborated) that very little milk is consumed and they thus largely escape the danger of bovine infection.

To the Natives in the Cape Province, with meningeal and respiratory mortality rates of 5.27 per 100,000 and 126.2 per 100,000 respectively, exactly the same argument applies.

It is, however, amongst Europeans in the Cape Province with mortality rates (pulmonary 21.8 per 100,000 and meningeal 3 per 100,000 for 1947) approximating those of the British Isles, that the apparent discrepancy lies (no bovines in 16 cases), for this class of person consumes roughly a similar quantity of milk as do people in England and, as will be pointed out later, there is some reason to believe that their milk supply is very little, if any, better as regards contamination with tubercle bacilli than the milk consumed in Great Britain.

In an attempt to verify the claim that the human case of pulmonary tuberculosis is by far the most important epidemiological factor in tuberculous meningitis in this area, an attempt was made to investigate the environment of the 200 cases examined bacteriologically, with the object of tracing each meningeal infection to its ultimate source.

With this in mind it was decided to investigate every case as follows:

1. Examine, and, if possible, submit all people normally coming into contact with the patient to an X-ray examination. A particular person was considered the source of the patient's tuberculosis when he or she presented definite clinical, or preferably, radiological evidence of pulmonary tuberculosis; and also when it had been established that such a person had been in close contact with the patient for some period of time.
2. Investigate the milk supply of the patient where necessary.

It soon became obvious that this was a most difficult task for a large number of reasons, not the least important of which was the apathy encountered amongst patients' relatives.

It was also apathy and a woeful lack of any understanding of the disease which prevented many parents and close relatives from attending the various clinics for examination, even upon repeated requests to do so.

Another factor was the hopeless state of overcrowding in which most of these people live—2 families often sharing one room, or three or more families sharing one house. It was practically impossible to get all the occupants of one house, or even one room sufficiently interested to come up for an examination.

Through lack of facilities country cases were hardly ever investigated.

As regards the other possible source of tuberculosis—milk—it was found that, especially amongst non-Europeans, if any milk was consumed it was usually bought casually at neighbouring dairies, a regular delivery of milk being unheard of.

These dairies in their turn buy milk in bulk from various and variable sources, and under these conditions I agree with Munro and Scott[29] that it is practically impossible to trace human bovine infection to a particular cow and most investigators have thus simply confined themselves to the question whether or not the patient was in the habit of consuming raw cow's milk.

These are the reasons why the one bovine case (a Coloured child) occurring in Cape Town could not be traced to a tuberculous cow, although it was established that the child did consume a certain amount of unboiled cow's milk and that there were no cases of pulmonary tuberculosis amongst its immediate family. An attempt was made to investigate the other bovine case (a Coloured farm labourer's child on a farm in the Piketberg district) but owing to various difficulties, this was also unsuccessful. Again it was however established that the child did regularly consume raw farm milk.

Forty per cent of the remaining 198 patients were not investigated. This implies that either none of the possible contacts could be investigated, or, as more frequently happened, only a minority of the people living with the child could be examined and were found to be non-tuberculous. This figure compares poorly with a series of 182 cases investigated in England[11] in which no information (in the above sense) was obtained in only 13.7% of cases.

Results of contact investigations of the remaining 127 cases due to the human type of bacillus are that prolonged contact with a case of respiratory tuberculosis could be established in 112 instances (88.1%), 89.8% for Coloured cases, 100% for Native cases, 78.6% for European cases and 0% for 1 Asiatic case investigated.

The relationship of the contact to the patient in this series of cases is set out in Table III.

TABLE III: RELATION OF CONTACT TO PATIENT.

Relation to Patient	*Number of Cases*
Lodger	38
Mother	18
Father	15
Uncle	14
Aunt	6
Brother	4
Sister	4
Maid	3
Friend	2
Grandfather ..	2
Grandmother ..	1
Greatgrandfather ..	1
Greatgrandmother	1
Cousin	1
Neighbour	1
Landlord	1

Worthy of note is the fact that a tuberculous non-European maid was the source of infection of three European children. These results differ from those of other investigators (Lincoln[27]) who incriminate close relatives (mothers and fathers) more frequently than unrelated people in the same house (lodgers), and is possibly a reflection on the state of overcrowding existing in the homes of most of the patients.

An interesting point brought out of this investigation, as also the English investigation,[11] is the decline in the contact rate with increase in age presumably due to widening of the possible field of contact. (Table IV).

TABLE IV: AGE—CONTACT RELATIONSHIP

Age	*No. of Cases Investigated*	*% of Contacts*
0—5 ..	96	100
5—10 ..	14	50
10—15 ..	9	66
Above 15..	8	50

For alimentary bovine infection to occur in a community, two requirements must be met. Firstly the milk supply must contain viable tubercle bacilli and secondly the population must be exposed to the infection by drinking the contaminated milk. With regard to the first point, the position existing in Cape Town is not definitely known as no generalized tuberculin testing scheme has been undertaken amongst dairy cows, and abattoir figures are unreliable for the simple reason that diseased cows are usually not submitted to the Cape Town abattoir, but sent to the small peri-urban abattoirs where control is less strict (Cooper[28]).

The only extensive tuberculin survey carried out in this country amongst dairy cattle is the investigation attempted in Durban in 1930 (Green[29]). Forty per cent of dairy cows in that area were found to be positive reactors. The very high incidence of 6.4% of these cows were found to have tuberculous disease affecting the udder, and I agree with de Kock[30] and Sampson[31] in concluding that data such as this, seem to indicate that the incidence of tuberculosis in dairy cattle in Cape Town, may also not be inconsiderable.

What, however, is known about the milk supply of Cape Town is that Horwitz[32] in 1950-51 reported viable tubercle bacilli in 2.7% of herd samples supplying milk to the City. It must be stressed that these figures apply to herd samples and once the milk is bulked, the figure is correspondingly greater.

In Great Britain (Francis[33]) about 40% of cows slaughtered in public abattoirs are tuberculous; about 0.5—1.0% or more of these cows (Stamp[34]) have the disease affecting the udder and 7.5% of churn (presumably bulked) samples contain viable tubercle bacilli (Francis[35]).

Tuberculous milk can, of course, be rendered harmless by subjecting it to some form of heat treatment, i.e. the various forms of pasteurization or boiling and at present (November 1952) about 60% of milk sold in Cape Town is pasteurized (Horwitz[32]).

Owing to lack of facilities, milk sold in country places is hardly ever pasteurized and neither is the infective agent diluted by the process of bulking which is carried out in larger centres. These facts taken in conjunction with certain immunological considerations would lead one to anticipate higher human bovine infection rates in the country than in large cities and this has been confirmed by Letham.[36]

Although dairy cattle are infected in North Ireland to a degree similar to that existing in Great Britain, the low incidence of bovine tuberculous meningitis (3.3%) in the former country is accounted for by the fact that over 90% of the milk consumed in that country is pasteurized (Reilly [12]).

The extremely low incidence of human bovine infections in Japan and India is attributed to the low incidence of bovine tuberculosis and the fact that as the result of national customs, the people never drink milk until it has been boiled (Kimuru and Kondo [14]; Crawford [37]).

With reference to the second factor in human bovine tuberculous (that of consuming the contaminated milk), the highest incidence of bovine infection is always found in early life and is probably due to the greater consumption of milk at that age. There are thus greater opportunities for infection should the milk contain viable tubercle bacilli. Further, the possibility of acquired resistance due to an arrested infection of the lungs may also determine the relative infrequency of alimentary bovine tuberculosis in the adult as compared with the child.

Amongst the non-European population of Cape Town, with whom, due to sheer weight of numbers we are mainly concerned, drinking a glass of milk is a habit practically never indulged in at home. The usual practice is either to forgo it altogether, or to use it sparingly in tea or coffee. If milk is occasionally bought, it is usually boiled at once to prevent it going sour and more often than not condensed milk is substituted because it can be kept longer without going off. The practice of having a regular delivery of milk is almost unheard of.

Most infants are breast-fed and, if necessary, are supplied with powdered milk from the various municipal clinics.

As a result of drinking very little milk, the non-European population is thus hardly exposed to the hazard of bovine tuberculosis.

The European population on the other hand consumes a large amount of milk and one would deduce from facts quoted, that they at least should have a bovine infection rate roughly similar to that existing in the British Isles. The present result, of no bovine infections in 16 cases, is, however, not statistically significant.

SUMMARY

1. Isolation of the casual organisms was attempted by means of guinea pig inoculation and cultural methods in 202 cases of tuberculous meningitis, 163 of which originated in the Cape Peninsula and the remaining 39 in various towns of the Western Province of the Cape.

Material consisted of ante-mortem cerebrospinal fluid and/or cerebrospinal fluid and basal exudate obtained post-mortem.

In 200 individual cases isolation was successful.

2. The 200 individual strains isolated were typed by cultural, guinea pig and rabbit virulence methods. They all proved to be mammalian in type, 198 of them being typically human in character, while 2 (1%) were bovine in type.

3. One hundred and sixty-four of the 200 patients were Coloured, while there were 17 Natives, 16 Europeans and 3 Asiatics.

4. The fact that exactly 50% of the patients were below 2 years of age and that 44.5% were males, stresses the importance of age as opposed to sex in the epidemiology of the disease.

The disease also shows a slight seasonal incidence in that more cases tend to occur in the late winter and spring months.

5. It was possible to trace prolonged contact with a case of human pulmonary tuberculosis in 112 (88.1%) of the 127 cases of meningitis investigated.

The meningeal bovine infection rate encountered in non-Europeans in this investigation (2 in 184 or 1.1%) is regarded as approximating closely to the true incidence existing in that section of the community in this area.

Evidence is presented which tends to show that the milk supply of Cape Town is contaminated with viable tubercle bacilli to a degree very nearly similar to that existing in the British Isles at present, and the low human bovine tuberculosis rate existing amongst non-Europeans is ascribed to the fact that this class of person consumes none, or the absolute minimum of cow's milk. The infants are breast-fed, and the non-European population as a whole is thus simply not exposed to bovine infection. This fact, taken in conjunction with the statement that the pulmonary tuberculosis death rate of non-Europeans in the Cape Province is one of the highest in the world, the high meningeal mortality rate coupled with the high incidence of human type infection encountered is attributed to this tremendous reservoir of pulmonary tuberculosis disseminating human tubercle bacilli in the crowded conditions under which the ignorant and undernourished non-Europeans exist.

The finding of no bovine meningeal infections in the 16 European cases investigated does not (by reason of the numbers) allow deductions about the true bovine rate existing in the European population to be made and this will have to await further typing experiments.

However, as far as results of this investigation are concerned, the human case of pulmonary tuberculosis is definitely established as being by far the most important epidemiological factor in the causation of tuberculous meningitis in this area.

I must thank Prof. R. Turner for granting me the various laboratory facilities required and personal interest taken in the work.

Dr. J. F. Wicht, Superintendent of Hospitals provided most of the clinical material and to him and the Staff of the various Municipal Hospitals and clinics I tender my sincere appreciation for willing assistance given.

Finally I thank the Secretary for Health, Dr. J. J. du Pre le Roux, for permission to publish this investigation.

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ABSTRACTS

A. B. H. Funcke. *Cyclospasmol.* (*Geneeskundige Gids*, 25 January 1951, p. 23.)

Macht noted as long ago as 1922 that the derivatives of mandelic acids have a spasmolytic effect. A large number of esters of these acids have been synthesized and, subsequently, analysed in order to ascertain whether they would exercise any antagonistic effect upon spasms produced in the cavey intestine by acetylcholine, histamine or $BaCl_2$. It appeared that in the relative series the most powerful effect was that of the amygdalas 3.5.5-trimethylcyclohexanoli (cyclospasmol). The spasms in the cavey intestine which had been caused by 2γ of acetylcholine, 2γ of histamine or 10 mg. of $BaCl_2$ were completely removed by 0, 1 — 0, 2 mg. of cyclospasmol. It was noted that, in regard to the first two substances, this latter substance had an effect twice as powerful as that of papaverine. Moreover, cyclospasmol had an antagonistic effect upon the increased motility of rabbit uteri, produced by the extract of the posterior lobe of the hypophysis. The peroral administration to mice of a dose of 4g/kg showed no reactions; a larger dose caused numbness, 8g/kg not yet being the lethal dose. It appeared from the subcutaneous administration in arachis-oil that 4g/kg is the Lethal Dose 50 (the lethal dose of papaverine administered per os to rabbits amounts to 1g/kg). A favourable effect of cyclospasmol has been noted upon spasms of cat-stomachs when these spasms were produced either by excerebration and resection of the splancnic nerves, or by large doses of morphine. A peripheral vascular dilatation can be noticed with frogs (Trendelenburg preparation).

E. R. Losada Trulock. *Treatment of Auricular Fibrillation.* (*Revista Clinica Española*. Tomo. XLIV, Nr. 3, 15 February, pp. 201–207.)

The use of Quinidine in the treatment of auricular fibrillation is discussed and the author mentions how former fears regarding the use of quinidine have disappeared, now that its effects and contra-indications are better understood. Usually it is given orally. Up to 95% of the drug is absorbed in the digestive tract and after 24 hours all is excreted, so that there is no danger of accumulation. Consequently the total dosage is unimportant.

A trial dose of 200 mgm. is administered to test for idiosyncrasy and after 2–3 hours treatment can be commenced. Usually a dosage of 2 gm. daily has proved to be adequate. As the maximum blood concentration is reached in 3 hours, a 4 hours' interval in administration is advisable.

In some cases higher doses, requiring careful control, can be given.

The author sounds a warning against the use of quinidine after intensive digitalization.

In a summary of the latest literature the author discusses current theories regarding auricular fibrillation, its role in diminishing the efficiency of the cardiac output and in causing cardiac failure.

Like many other authors he stresses the fact, that the arrhythmia itself is the dangerous factor in causing embolism in fibrillation (and not the drug invoking conversion). The author points out how subjectively and objectively benefit can be derived from conversion.

Trulock summarizes the following indications for the use of quinidine (Palm and Schultz):

1. Absolute Indication.

(a) Fibrillation or flutter of recent date (with normal *röntgenologic* heart-figure, normal heart-tones and normal blood-pressure).

(b) Ventricular tachycardia.

(c) Flutter or fibrillation after thyroid operation.

2. General accepted indication.

(a) Fibrillation or flutter of relatively longer duration.

(b) Ventricular extra-systoles.

(c) Paroxysm of auricular tachycardia or nodal tachycardia, not reacting to other drugs.

(d) Auricular fibrillation in cases of cardiac infarction.

3. Frequent use, because of its beneficial effect, which has been empirically proved.

Prophylaxis to avoid arrhythmias in cases of cardiac infarction.

G. Nor Eldin and F. Morcos. *Pentaquine in the Treatment of Malaria.* (J. Roy. Egypt. Med. Assoc., 1952, **35,** No. 5.)

The authors treated 25 patients suffering from benign tertian malaria with 40 mg. pentaquine phosphate and 900 mg. quinine sulphate daily for 14 days; 18 patients were treated in the same way, but for only 5 days. All the patients were followed up in their homes for six months.

Of the first series 22 could be followed; only one of them had a relapse after one month. Of the second group of 18, three relapsed. No toxic symptoms of any importance were observed.

The authors are convinced of the value of the combination pentaquinine-quinine in diminishing the number of relapses, especially when given for 14 days.

(The poorer results in the 5-days course were only to be expected, because it is general knowledge that a 10 to 14-days treatment with the aforementioned combination is required for the radical cure of benign tertian malaria.—Note of the reviewer.)

South African Medical Journal

Suid-Afrikaanse Tydskrif vir Geneeskunde

EDITORIAL

A COLLEGE OF PHYSICIANS AND SURGEONS FOR SOUTH AFRICA

When the idea of a College of Physicians and Surgeons for South Africa was conceived and it was found that little could be done by individuals, the help of the Medical Association was sought and was willingly given. The preliminary work took some time and a draft constitution was produced on sound legal advice and presented to the medical profession of South Africa.

The Association had before it the example of the Colleges that have been successfully established in Canada and Australasia. The draft constitution has been based to a large extent on what has been found to be best for South African conditions in the constitutions of the older-established Colleges, both ancient and modern, and thus combines their experience with the needs of South African law and custom.

There have been a number of set-backs which have had to be met and the Committee which was charged with carrying out the preliminary work has not made all the progress which it had hoped. Most of the difficulties, however, have now been resolved and at the request of the Federal Council the Committee has agreed to defer the closing date for the receipt of applications from Founders to 30 June 1953. The inaugural meeting will be held at a convenient time after that date and at a place convenient to the majority of the Founders.

At that inaugual meeting the first Council of the College will be elected by the Founders and the present Committee will be automatically discharged.

It has been said that 'the founding of the College will mark an important milestone in the history of medicine in South Africa'. It can with equal truth be said that the founding of the College will constitute one of the major achievements of the Medical Association of South Africa and one which will have far-reaching effects on the quality of medical practice in the Union, from which the whole population will benefit.

The considerable task of evolving a draft constitution has been accomplished, and we should not be discouraged because it is taking some time for the Committe's efforts to

VAN DIE REDAKSIE

'N KOLLEGE VAN INTERNISTE EN CHIRURGE VIR SUID-AFRIKA

Met die ontstaan van die plan vir 'n Kollege van Interniste en Chirurge vir Suid-Afrika was dit besef dat nie veel deur individue verrig kon word nie en is die Mediese Vereniging om hulp gevra wat gewilliglik gegee is. Voorbereidende werk het heelwat tyd in beslag geneem. Gegrond op deeglike regsadvies is 'n ontwerp-konstitusie opgestel en aan die mediese professie van Suid-Afrika voorgelê.

Die Kolleges wat met welslae in Kanada en Australië gestig is het as voorbeelde vir die Vereniging gedien. Die ontwerp-konstitusie is in 'n groot mate gegrond op dié dele van die konstitusies van gevestigde Kolleges, beide die oue en die moderne, wat die mees geskik vir Suid-Afrikaanse toestande bevind is en op dié wyse is hul ondervinding en die behoeftes van die Suid-Afrikaanse wet en gebruik saamgevat.

Die Komitee aan wie die preliminêre werk toevertrou is het met heelwat terugslae te kampe gehad, en hul kon nie so ver vorder as wat hul verwag het nie. Die meeste van die moeilikhede is egter nou uit die weg geruim en op versoek van die Federale Raad het die Komitee ingestem om die sluitingsdatum vir die ontvangs van Stigters se aansoeke tot 30 Junie 1953 uit te stel. Die inwydingsvergadering sal te geleë tyd ná hierdie datum belê word op 'n plek wat vir die meerderheid van die Stigters sal pas.

Op daardie vergadering sal die eerste Raad van die Kollege deur die Stigters gekies word en die huidige Komitee sal outomaties ontbind word.

Dit is gesê dat ‚die stigting van die Kollege 'n belangrike mylpaal in die geskiedenis van geneeskunde in Suid-Afrika sal wees'. Net so kan dit tereg gesê word dat die stigting van die Kollege een van die grootste prestasies van die Mediese Vereniging van Suid-Afrika sal wees—'n prestasie wat verreikende gevolge op die gehalte van mediese praktyk in die Unie sal hê, en wat vir die hele bevolking tot voordeel sal wees.

Die aansienlike werk om 'n ontwerp-konstitusie op te stel is afgehandel en ons moet nie ontmoedig word nie omdat dit 'n bietjie tyd neem om die vrugte van die

bear visible fruit. Anything which is as worth doing as this, is worth doing properly, and foundations are being laid now that they may last as long as medicine is practised in our country. We are not planning for ourselves alone and, in fact, there is very little that the Founders will gain for themselves other than the satisfaction of knowing that they have built something worth while from which future generations will benefit.

Komitee se werk te pluk nie. Enigiets wat so die moeite werd is, is die moeite werd om behoorlik gedoen te word en die fondamente wat nou gelê word mag staande bly so lank soos geneeskunde in ons land beoefen word. Ons bou nie vir onsself alleen nie en in werklikheid sal die Stigters self weinig baat daardeur vind andersins as die bevrediging dat hul vir die nageslag iets wat die moeite werd is tot stand gebring het.

FACIAL GRANULOMAS WITH EOSINOPHILIA

REPORT ON A CASE AND DISCUSSION OF ITS NATURE

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Cutaneous granulomas characterized by tissue eosinophilia, like eosinophilic granulomas of other organs, have been the subject of many studies in recent years. Their status is made unsure because the significance of eosinophilia in blood and tissues is not fully understood.

Tissue eosinophilia is occasionally or constantly discovered in a great number of unrelated dermatoses, but the 'true' eosinophilic granulomas of the skin show almost invariably, in addition to tissue eosinophilia, other histological changes which follow relatively characteristic and distinctive patterns.

Classification of the cutaneous eosinophilic granulomas is still most unsatisfactory because of the rarity of all types. They can be roughly divided into the following categories which seem to bear little or no relationship to each other.

1. Eosinophilic granulomas which are cutaneous manifestations of a general reticulo-granulomatosis.
2. Eosinophil granulomas of the face which are probably dermal allergides.
3. Cutaneous granulomas with marked tissue eosinophilia which do not belong to either of the above groups but yet cannot be classified with any known dermatosis.
4. Cutaneous granulomas of known origin impregnated by eosinophil cells.

General interest in the eosinophilic granulomas of the skin seems to have been awakened after an article by Weidman [1] in 1947, but the first authors specifically to use the term eosinophilic granuloma of the skin were Nanta and Gadrat,[2] of Toulouse, in 1937. Martinotti (1919) had previously spoken of granuloma eosinophilum and eosinophiloma cutaneum and he is sometimes cited as the pioneer in this field (cited by Woerdeman [3]).

The difficulties in classification of these granulomas is illustrated by the controversy which still continues over the nature of Nanta and Gadrat's first case.[4-6] This patient was a man of 21 years who presented vegetating lesions of the gums and mouth and anal region, diffuse decalcification of the jaw, loosening of the teeth, and signs of diabetes insipidus with polydypsia and polyuria. The histological picture was of a reticulo-granulomatosis with many mono- and polynuclear eosinophils. There was also a proved pulmonary tuberculosis. The ultimate fate of this patient is unknown.

The Toulouse school,[6] and some other French authors (e.g. Albahary [7]), classify this case as one of reticulo-granuloma related to and sometimes associated with eosinophilic granulomas of bone; and the whole process is considered to be allied more closely to the reticuloses of the types mycosis fungoides and Hodgkin's disease than to Hand-Schüller-Christian's and Letterer-Siwe's diseases.

For other authors [1, 3] Nanta and Gadrat's case was simply one of orificial tuberculosis. It will be seen later that Woerdeman's classification does not include a group of vegetating peri-orificial eosinophilic granulomas as does that of de Graciansky, Paraf and Leclercq. For Woerdeman any such cases of 'true' eosinophilic granulomas would fall into the categories of reticulo-granuloma eosinophilicum cutis simplex or of granuloma eosinophilicum pemphigoides.

We shall list only 2 systems of classification. The first is that of de Graciansky, Paraf and Leclercq (collected from 2 sources [8, 9]).

1. Eosinophilic granulomas related to the malignant reticuloses; characterized by adenopathy, dermo-epidermal infiltrate, giant cells and blood eosinophilia.
2. Eosinophilic polyneuritis with skin lesions; probably a variety of reticulosis.
3. Vegetating peri-orificial eosinophilic granulomas; rapid extension, no adenopathy, no giant cells and no blood eosinophilia (e.g. Nanta and Gadrat's case).
4. Facial granulomas with eosinophilia; consisting of a dermal infiltrate of eosinophils (mainly polynuclear) and some histiocytes, and capillaritis.
5. Granulomatous tissue impregnated by eosinophils.
6. The syphiloid of cats. This is almost certainly unrelated to the eosinophilic granulomas of man. Eosinophilia in cats follows a pattern different from that found in other mammals.

The classification we shall follow is that of Woerdeman.[3] It is a revised and expanded version of that originally suggested by Weidman.[1]

I. Granuloma eosinophilicum diutinum faciei.
II. Reticulo-granuloma eosinophilicum cutis.
III. Reticulo-granuloma eosinophilicum cutis simplex.
IV. Granuloma eosinophilicum pemphigoides.
V. Granulomata eosinophilica cutis varia.
A. Reticulo-endotheliosis with tissue eosinophilia.
B. Chronic and acute non-specific infections with tissue eosinophilia.

Under the heading of *pseudo-granulomata eosinophilica cutis* Woerdeman lists cases where eosinophilic granulomas of the skin are manifestations of some well-known disease, e.g. cases of paramycetoma, tuberculosis (Nanta and Gadrat's first case), Hodgkin's disease, mycosis fungoides and eosinophilic leukaemia.

As *intermediary cases* falling between the 2 main groups Woerdeman lists cases showing marked tissue eosinophilia which might be examples of naevoxantho-endothelioma, pemphigus vulgaris or dematitis herpetiformis, Kaposi's sarcoma, lymphosarcoma and erythro-oedema eosinophilicum.

Granuloma eosinophilicum diutinum faciei (facial granulomas with eosinophilia [10]); eosinophilic granulomas of the skin, type erythema elevatum diutinum [11]; granuloma eosinophilicum papulosum faciei [12] (F. G. E.) is a rare condition (Woerdeman lists only 22 cases) with fairly characteristic clinical and histological pictures to distinguish it from the other 'true' eosinophilic granulomas.

The characteristic lesions are plaques arising from the growth and spread of papules or nodules and localized to the face, especially the nose and cheeks. The plaques are irregular in shape, have sharply defined edges, are slightly elevated and are elastic to touch. They vary in size from a few millimetres to one or two centimetres. The overlying skin is usually unaltered except in colour which varies from brownish-red tinged with orange to purplish-red. The infiltrate may sometimes be very slight or absent so that the lesions could be described as macules. The lesions grow very slowly, do not become ulcerated and cause little or no itch. Widening of the mouths of the follicles or fine telangiectases over the lesions have been seen in a few cases. Crust formation and the appearance of lesions apart from the face are exceptional. No case has so far been described in which such lesions have occurred only on areas apart from the face.

The patients affected are usually healthy men of middle age. No other abnormality is to be found on general investigation; but a blood eosinophilia (over 4%) was present in a quarter of the cases collected by Woerdeman. The condition is extremely chronic.

Histology [3, 13]: The epidermis is usually normal and shows very minor changes of slight hyperkeratosis, acanthosis, spongiosis or atrophy. A diffuse granulomatous infiltrate fills the cutis and may reach the subcutis; in places it is clearly perivascular. Vascular changes are generally present, although they may be absent. The vessels are dilated and the endothelial lining is swollen. The vessel walls are sometimes infiltrated with eosinophils or lymphocytes. The perivascular connective tissue may show degenerative changes sometimes described as hyaline degeneration.

The infiltrate consists of poly- and mononuclear eosinophil leucocytes (which, in places, may dominate the picture), histiocytes and lymphocytes, and in smaller numbers, neutrophil leucocytes, plasma cells and fibroblasts. Mast cells have been found in a few cases. Perivascular leucocytoclasis may be seen.

It is of diagnostic importance that the infiltrate does not invade the epidermis or the adnexa as it may in cases of reticulo-granulomatosis. In a few cases histiocytes containing haemosiderin granules, and little extravasations of erythrocytes are seen. In only one were foam cells found.[14] Lipidization, however, is a non-specific reaction and may occur in a variety of diseases apart from the reticuloses. Necrosis and suppuration do not occur. Elastic fibres are usually absent in the infiltrated areas. Proliferation of reticulin fibres is usually visible.

In older lesions there are sometimes fewer eosinophils and more fibroblasts. The infiltrate can be partly replaced by fibrous tissue; and the vessel walls become thick and fibrous.

Mitoses are not seen and there is no major reaction in the reticular cellular system. The impression given is that the process is of an allergic nature.

The role of allergens, microbic or chemical, in the production of the disease has not been proved. There is a strong resemblance, however, in this histological picture to that seen in the nodular dermal allergides where there is reason to suspect the action of microbic allergens.

The majority of cases in the literature has resisted all forms of treatment or has relapsed after improvement. X-ray therapy or excision seem to be the most hopeful methods. Spontaneous (complete) cure is not reported although individual lesions may disappear. The following case of facial granulomas with eosinophilia seems to belong to this group.

Case History: A European man, aged 54, had suffered for 3 months from an itching eruption on the left eyelid, temple and adjacent scalp. His general health was good and he gave no history of any major disease.

When first seen in October 1952 the superficial appearance was reminiscent of a healing zoster, an impression soon dispelled by the history and closer inspection. The left upper eyelid was swollen, brownish in colour and elastic in consistency. Vision was almost completely obstructed. On the left temple were a number of discrete brownish-orange nodules, 2–3 mm. in diameter, firm to touch and freely moveable over the underlying bone; some were excoriated or scabbed as a result of scratching. Similar nodules were present on the swollen eyelid and on the scalp (hair unaffected) (Fig. 1). There was no regional or general lymphatic grandular enlargement.

A tentative diagnosis of benign lymphocytoma was made, but histological examination showed the lesions to be eosinophilic granulomas.

Blood: Haemoglobin, 17.3 gm %.
Erythrocytes, 5,710,000 per c.mm.
Leucocytes, 11,600 per c.mm.
Neutrophils, 59.5%.
Monocytes, 12.0%.
Lymphocytes, 23.0%.
Eosinophils, 4.0%.
Basophils, 1.5%.
Sedimentation rate, 24 mm. in 1 hour.
Serum tests for syphilis, negative.

Total lipids, 511 mg. per 100 c.c.
Sternal marrow, no abnormality.
Radiological examination of skull, no abnormality.
Urine, no abnormality.
Blood pressure, 146/86 mm. Hg.

While investigation was proceeding he was treated with intramuscular injections of procaine penicillin in large doses for a week without the slightest effect.

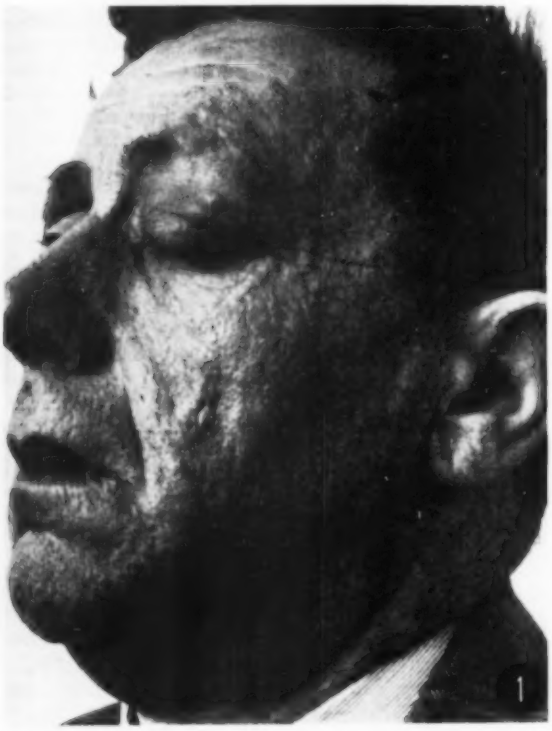


Fig. 1. Facial granuloma with eosinophilia showing characteristic distribution of lesions, with ptosis and oedema of eyelids.

After the diagnosis was established he was treated with high voltage X-rays through 2 contiguous fields, one covering the left eye and forehead with a lead shield protecting the cornea, and another covering the left half of the scalp. Each field received 2,000 r over a period of 13 days.

There was little change in the original lesions immediately after treatment (November 1952), but a few fresh nodules had appeared on the right side of the scalp. These fresh lesions disappeared, without treatment, in about a month.

In December 1952 there was a marked improvement. The swelling of the eyelid had subsided and the skin was normal in colour; the lesions on the temple had disappeared, but those on the scalp were unaltered. There was no itch.

Two weeks later there was a recrudescence with a little swelling of the left upper eyelid and the appearance of a few small pink papules upon it. A second biopsy specimen was taken from one of the original lesions on the scalp, and an altered histological picture was seen.

In the ensuing 2 months, to February 1953, the state of the swelling of the eyelid fluctuated between relatively little and enough to interfere with vision. Some nodules disappeared, others remained unaltered and a few new ones appeared in the original area.

Histopathology. Both the biopsy specimens were fixed in a solution of 10% formalin. Sections were cut and stained by the haematoxylin and eosin, toluidin blue, per-iodic acid Schiff and reticulin methods. Frozen sections were cut and stained with Sudan IV.

Microscopic examination of the sections from the first specimen show the presence of a small superficial area of ulceration of the epidermis. Apart from slight atrophy of the rete pegs, the epidermis surrounding the ulcer appears normal. Some of the hair follicles are atrophic. Separated from the epidermis and also from the base of the ulcerated area by a narrow band of normal collagen, there is an extensive mixed granulomatous infiltrate (Fig. 2). Although fairly diffuse, this infiltrate is centred mainly around the blood vessels and pilosebaceous structures. The infiltrate is composed of lymphocytes, histiocytes, numerous eosinophil leucocytes, some polymorphonuclear leucocytes and an occasional plasma cell (Fig. 3). The histiocytes usually occur in small or large irregular foci, whereas the eosinophils are scattered irregularly throughout the tissue. Silver impregnation shows a fairly dense reticulin network in the infiltrated areas and perivascularly. The collagen shows a patchy basophilic degeneration and fragmentation.

Owing to the density of the infiltrate around the blood vessels the histopathological features of the latter are to some extent obscured. The blood vessels at the edge of the infiltrate, however, show well-marked endothelial swelling, narrowing of the lumen and oedema of the wall. The polymorphonuclear leucocyte component of the infiltrate is centered mainly around the blood vessels. In addition to these cells, occasional bare nuclei and some nuclear debris can be seen in the perivascular zones. The collagen here has lost its staining reaction and is fragmented.

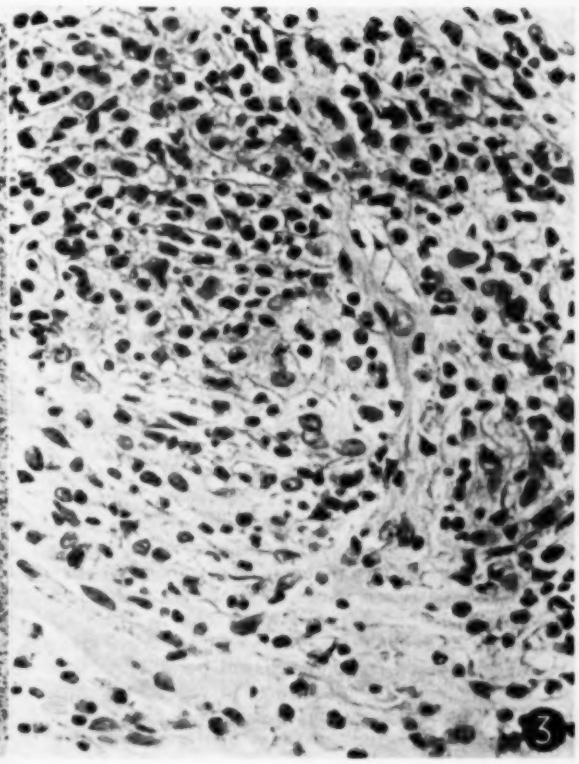
Microscopic examination of sections from the second biopsy specimen show no significant changes in the epidermis. A patchy granulomatous infiltrate in which the foci are separated from one another and from the epidermis by thick bands of collagen, is present in the middle and lower dermis. The infiltrate is composed of the same cellular constituents as in the first specimen, but there is a marked diminution in the number of eosinophils and polymorphonuclear leucocytes and an increase of fibroblasts (Fig. 4). The blood vessels show hyaline thickening of the walls and are surrounded by concentric layers of hyaline fibrous tissue. Frozen sections stained with Sudan IV revealed the presence of fat in some of the histiocytes.

These 2 pictures correspond closely with the description given of the early and late stages of eosinophilic granulomas of the type granuloma eosinophilicum diutinum faciei.

Differential Diagnosis

The facial granulomas with eosinophilia with their typical distribution, chronic course, absence of involvement of other organs and histological picture reminiscent of the allergides bear little resemblance to the other main group of eosinophilic granulomas, the reticulo-granulomas. Their greatest affinity from a histological point of view is with erythema elevatum diutinum.

Reticulo-granuloma Eosinophilicum Cutis. This group includes the cutaneous manifestation which may occur in Letterer-Siwe's disease (L. S.), Hand-Schüller-Christian's disease (H. S. C.) and eosinophilic granuloma of bone (E. G. B.). Many authors (e.g. Goodhill [15]) believe that these 3 (probably) related reticulo-granulomas would be



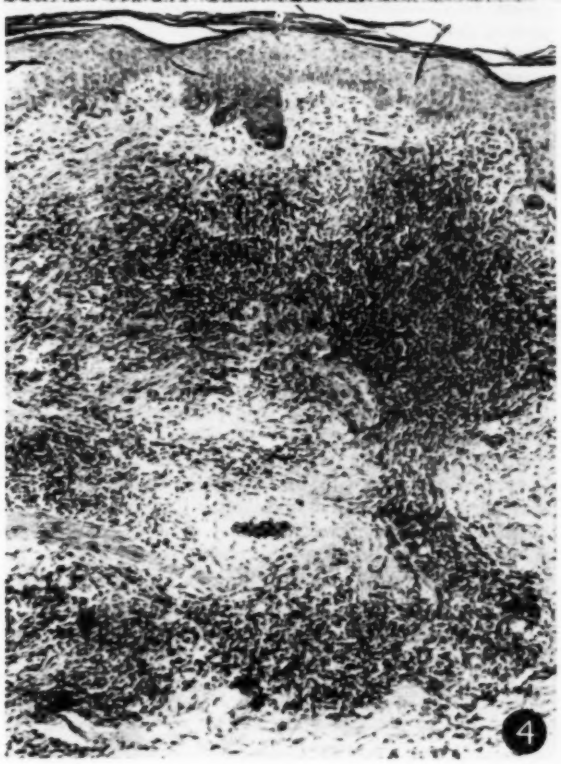


Fig. 2. Facial granuloma with eosinophilia showing superficial ulceration of skin with underlying diffuse granulomatous cellular infiltrate (stained with H & E).
Fig. 3. Facial granuloma with eosinophilia showing the presence of lymphocytes, histiocytes, eosinophil leucocytes and polymorphonuclear leucocytes (stained with H & E).
Fig. 4. Facial granuloma with eosinophilia showing commencing fibrosis in chronic stage (stained with H & E).

better known as histiocytic granulomas; the eosinophils are certainly not the most important cells involved. Goodhill would divide the disease process into 3 stages.

Acute histiocytic granuloma; Letterer-Siwe's disease.
Subacute histiocytic granuloma; Hand-Schüller-Christian's disease.
Benign chronic histiocytic granuloma; eosinophilic granuloma of bone.

Skin eruptions are much commoner in L. S. and H. S. C. than in E. G. B. The lesions are not reminiscent of those of F. G. E. Petechial purpuric eruptions; papular, vesicular and scaling lesions reminiscent of seborrhoeic dermatitis; papules which may become confluent to form plaques; and lipoid infiltration of the eyelids (Dachshund eyes) have all been described. In other words, as in all the reticuloses, the clinical picture is non-specific and diagnosis rests on the X-ray findings of bone lesions (H. S. C. and E. G. B.), on the presence of hepato-splenomegaly (L. S.) and, especially, on the histological picture in the organs affected.

In L. S. there is a proliferation of reticular and endothelial cells; these cells are large and contain no lipoid.

Giant cells are sometimes seen, and between the affected reticulum cells lie a few lymphocytes and plasma cells. Eosinophils are rare.

The basis of the infiltrate in H. S. C. is a histiocytic proliferation. The histiocytes (foam cells) contain double refractive lipoids such as cholesterol and cholesterol esters. Giant cells, fibroblasts, lymphocytes and neutrophil and eosinophil leucocytes are also seen in the infiltrate.

E. G. B. is also characterized by proliferation of histiocytes, often accompanied by a marked eosinophilia. Giant cells may be seen and macrophages in the vicinity of necrotic areas. Neutrophils, lymphocytes and plasma cells are present in small numbers; foam cells are not often found.

Reticulo-granuloma Eosinophilicum Cutis Simplex. This term describes those cases with skin lesions of a reticulo-granulomatous structure (as described above) but without evidence of affection of any organ apart from the skin. Such cases are extremely rare and their skin lesions may only be the forerunners of a generalized affection of the reticular system. Apart from the seborrhoeic dermatitis-like eruptions seen with the generalized reticulo-granulomas there have been described granulomatous, ulcerative and verrucous lesions, gingivitis and solitary tumours. The lesions seldom bear a clinical resemblance to F. G. E. and the histological picture is totally different.

Granuloma Eosinophilicum Pemphigoides. This group bears no resemblance from the clinical point of view to the facial granulomas. Patients present vegetating granulomatous lesions, especially in the perineal regions, and sometimes bullae. Woerdeman states that it is difficult to distinguish such cases from cases of pemphigus on the one hand and from cases of reticulo-granuloma eosinophilicum cutis simplex on the other.

Granulomata Eosinophilica Cutis Varia. Under this heading fall those cases called eosinophilic granulomas for want of a better diagnosis. They may be reticulo-endotheliosis or non-specific infections with tissue eosinophilia. Although such lesions may occur on the face, the field of discussion offered is too wide to be considered now.

Persistent Insect Bites. Extremely chronic lesions can follow insect bites; they may be eczematous, papular or ulcerative and can resemble F. G. E. The histological picture also has points of resemblance with a perivascular inflammatory infiltrate often with many eosinophils. There are major differences, however; the epidermis often shows a pseudo-epitheliomatous hyperplasia, the infiltrate contains many plasma cells, and epidermal inclusions containing insect remains are sometimes seen.

Sarcoid. The face is a common site for cutaneous sarcoids, and differential diagnosis from F. G. E. may be impossible on clinical grounds. The histological picture in sarcoid, with epithelioid cell proliferation, is quite characteristic, but even in sarcoid there have been cases which showed marked tissue eosinophilia. Other organs, lymph glands, bones and lungs, may be found to be affected in sarcoidosis.

Chronic Discoid Lupus Erythematosus. This condition, in its erythematous phase, can resemble F. G. E. but the histological picture, although showing vasculitis, is entirely different; and lesions are quite often found apart from the face.

Benign Lymphocytoma. The lesions of this condition are often confined to the face and many eosinophils may be present in the infiltrate; but the resemblance to F. G. E. is only superficial. The histological picture is of a sharply demarcated infiltrate of (mainly small) lymphocytes with a tendency to the formation of lymphatic follicles.

Reticuloses and Reticulo-endothelioses. It is conceivable that the first signs of one of these diseases (e.g. mycosis fungoides, à tumeurs d'emblée, Hodgkin's disease, lymphatic leukaemia) could appear upon the face and resemble F. G. E. But the histological picture, general findings and progress would establish the diagnosis.

Erythema Elevatum Diutinum (E. E. D.) This name was first used by Radcliff Crocker and Campbell Williams in 1894 to describe the skin lesions in a girl, age 6, who showed reddish-violet or brownish-red pea-sized nodules on the extensor surfaces of the joints of the hands, feet, knees and elbows and on the ears and buttocks. The histological picture was described as a fibrocellular structure round the blood vessels with a cellular infiltrate (type of cells not stated). J. S. Bury had previously described cases with a somewhat similar clinical picture; and J. Hutchinson had described a condition occurring in middle-aged men with a gouty or rheumatic history characterized by nodules and plaques in the same sites of election. In 1908 E. G. G. Little concluded from a study of cases in the literature (all of the Bury type) that E. E. D. was simply a variant of granuloma annulare (described first by Radcliff Crocker in 1902), and E. E. D. lost, for years, its identity in favour of granuloma annulare. Later studies have shown, however, that E. E. D. is a disease clinically and histologically distinct from granuloma annulare. It is no longer necessary to talk of Bury and Hutchinson types. Hutchinson's cases were typical of what is now implied by E. E. D.; Bury's cases were either granuloma annulare or a late stage of E. E. D. (A good résumé of the history of E. E. D. can be found in a recent article by Garnier [16]).

The histological resemblance between E. E. D. and F. G. E. is greater than the clinical. E. E. D. is also a rare, very chronic disease of middle-aged men but the face is seldom affected. Lesions occur most commonly on hands and feet, less often on the wrists, ankles, neck, knees and buttocks. The individual lesions, nodules or plaques, can resemble those of F. G. E.; but they may go on to ulceration, a result not seen in F. G. E. Degos *et al.*[17] have described one case where E. E. D. was complicated by episodes of bullous eruptions of the dermatitis herpetiformis type; and they cite a similar case seen by Audry. Cobane *et al.*[10] observed that practically all the published cases of E. E. D. give the impression that one is dealing with the manifestations of a systemic disease. Weidman and Besançon [18] stress the rheumatic background in many cases.

The characteristic histological changes in E. E. D. are in the corium. Lever [14, 19] differentiates three stages of development. In the first stage there is a dense cellular infiltrate with a predominance of polymorphonuclear leucocytes. In 2 recent cases of Degos *et. al.*[17, 20] pyknosis was a marked feature and this was also noticed by Weid-

man and Besançon. Lymphocytes, plasma cells, fibroblasts and occasional epithelioid and mast cells are also seen. Eosinophils are present in varying numbers, sometimes in considerable quantities. The capillaries are dilated and their endothelium is swollen. There may be perivasular hyaline degeneration.

In the second stage the infiltrate decreases and is mainly perivascular. Fibroblasts are more in evidence and the beginnings of fibrosis separates the infiltrate into irregular islands.

In the third stage fibrosis dominates the picture. The infiltrate is greatly reduced and polymorphs are absent. The capillary walls may show fibrosis.

In one of Degos's cases [17] there was collagen degeneration at a distance from the blood vessels and special staining (Sudan IV) showed intra- and extra-cellular droplets of a lipoid substance throughout the corium.

The histological similarity of E. E. G. to F. G. E. is obvious; the only major difference is the predominance of polymorphonuclear leucocytes in the former, eosinophilia in the latter.

The cause of E. E. G. is not known; but Weidman and Besançon isolated *Staphylococcus ignavus* in one case and likened the lesions of the cutis to the Aschoff rheumatic nodule.

CONCLUSIONS

Despite the rarity of all the eosinophilic granulomas of the skin we feel that the facial eosinophilic granulomas follow clinical and histological patterns sufficiently characteristic to allow of their being considered as a group apart.

The histological picture of vasculitis, perivascular fibrinoid necrosis, polymorphonuclear leucocytic infiltrate and leucocytoclasis suggests, even although a cause has not been discovered, that the lesions are allergides.

The view is not held by all authors. Pfleger and Tappeiner [12] believe that the facial type is an example of local reticulo-endotheliosis, and Professor Nanta [21] has seen 2 cases of eosinophilic granuloma (implying a reticulo-granuloma) showing vascular changes of the type seen in polyarteritis nodosa.

Our own case shows slight variations from the standard picture; the lesions itched and were excoriated and scabbed, and foam cells were seen in the infiltrate. We think, however, that the histological picture is suggestive more of an allergic than of a reticulo-granulomatous reaction.

If the facial granulomas are accepted as allergides they would be classifiable, according to Duperrat's [22, 23] scheme, in the group of rheumatoid granulomatous allergic reactions with the nodular dermal allergides of H. Gougerot, granuloma annulare rheumatic nodules and polyarteritis nodosa. Garnier has pointed out that the histological picture in erythema elevatum diutinum, which so closely resembles that of the facial eosinophilic granulomas, is also reminiscent of that seen in the nodular dermal allergides.

The temporary response to radiotherapy in our case is what might well be expected in an allergide where the cause had not been found and removed. Radiotherapy has not been conspicuously successful in most of the cases of facial granulomas with eosinophilia reported in the literature; but the eosinophilic reticulo-granulomas often respond well to this form of treatment.

In view of the controversy and uncertainty over the eosinophilic granulomas, and because further studies of these lesions and of eosinophilia in general must eventually lead to a revision of their classification, we prefer to use the non-committal title of facial granulomas with eosinophilia for our report.

SUMMARY

A case of facial granulomas with eosinophilia presenting some unusual features is described. The histological picture in such cases suggests that they should probably be classified with the allergides. The relationships of this condition to the other types of eosinophilic granulomas of the skin and to erythema elevatum diutinum are discussed.

We are indebted to Dr. F. A. Brandt of the South African Institute for Medical Research, Johannesburg, for preparing the photographs and photomicrographs. The radiological examinations were made by Dr. F. G. Stewart of Johannesburg, and radiotherapy was administered by Dr. M. P. Shapiro of the Johannesburg General Hospital.

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ANGINA PECTORIS WITH SECOND WIND

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In this rarely described syndrome anginal pain occurs during the early stages of exertion and if, by an effort of will, the exertion is continued, or if a short rest is taken, the pain disappears and the effort may be continued for long periods without discomfort. The histories of 2 patients with typical symptoms are reported.

CASE RECORDS

Case 1. A professional married man aged 48 years was suddenly seized with severe sternal pain whilst sitting at his desk. The pain lasted for several hours and the subsequent clinical and cardiographic history confirmed a diagnosis of coronary infarction. He made a good recovery from the illness.

For some years past he had experienced pain behind the lower end of the sternum if he walked fast or exerted himself unduly. An unusual feature of the complaint was that the pain was felt mainly during the early stages of exertion. It would occur, e.g. almost immediately following the commencement of a round of golf; if he made a short pause on the first fairway or continued on to succeeding fairways without stopping, the pain tended to disappear and he was able to complete a round of 18 holes without discomfort. Mental upsets also induced the pain.

Following his recovery from the attack of coronary infarction, he continued to have anginal pain if he exerted himself or was exposed to mental upsets, but made no attempt to obtain relief by continuing the exertion. He was a highly intelligent man of an excitable temperament.

Case 2. A married man, aged 50 years, employed as a clerk in a hospital, and holding a responsible post that entailed a good deal of worry, complained that for almost 7 years he had experienced attacks of pain behind the sternum. The pain was precipitated by walking on rising ground or by the playing of tennis and sometimes occurred after a meal. He was insistent that the discomfort was relieved by belching after a meal and also that whilst playing tennis, discomfort was felt only during the first game of the day, and that if he paused for a short while, or even continued to play in spite of the pain, the symptoms disappeared and he was able to continue the set and go on to active competitive tennis for the rest of the day in full comfort and without fatigue.

He was fond of dancing and noticed a similar sequence of events, i.e. discomfort during the first dance and thereafter ability to continue for many hours without distress or fatigue. He has used trinitrini on several occasions and obtained rapid relief.

He had been examined in several centres of the Union and the clinical and cardiographic examinations had not revealed signs of cardiovascular disease. Eight months before he had been wakened by a severe pain in the chest which lasted for 17 hours. A cardiograph tracing carried out the following day was normal and on the basis of this and the tolerance to long hours of dancing and tennis, it was thought highly improbable that the cause of the pain was a cardiac ischaemia. He continued to play tennis and to dance. He was teetotal and a non-smoker.

The general clinical examination was negative, apart from some signs of arteriosclerosis and a moderate hypertension, but the cardiograph tracing had the typical appearances of a fairly recent posterior coronary infarction.

DISCUSSION

The phenomenon of second wind in patients suffering from angina pectoris has, surprisingly enough, been described infrequently in medical literature and it has had no place in the classification of types of angina pectoris in textbooks or in the teaching of students. Price [1] recently collected 20 cases and suggested that close questioning of patients would bring to light an unexpectedly high incidence of the condition. In 1785, in a letter from an anonymous patient to Heberden,[2] the typical course of the syndrome was described. 'I have frequently when in company borne the pain and continued without indulging it; at which time it has lasted from 5 to perhaps 10 minutes and then gone off.' Osler [3] and Gallavardin [4] described such cases; Wenckebach,[5] in a lecture at the Royal College of Physicians of London, discussed this type of angina and some years later gave a fuller description of it and coined the expression *toter punkt*, meaning the dead point at which second wind occurred.

Sutton and Leith [6] suggested a similarity between the sensations experienced by young athletes immediately before the onset of second wind and quote the observation of a patient that the sensation felt when running up a mountain-side during an emergency in his youth was exactly the same as that felt during an attack of angina pectoris.

MECHANISM

The original observations of Jenner and later Parry on the influence of reduced blood flow through the coronary arteries as a cause of anginal pain, has come to be accepted as the most probable explanation.

During the past 30 years world-wide interest has been focussed on the coronary circulation and a close study of its anatomy and pathology has shed much light on the mechanism of angina of effort. The close resemblance, too, between the symptoms of coronary infarction and those of angina of effort have made it virtually certain that diminished blood supply to the myocardium is the cause of both syndromes. No satisfying explanation, however, was at hand to explain the exact mechanism of the pain of angina until the publications of Lewis [7] on the results of clinical experiments on circulatory arrest in the limbs. He showed that the pain of muscular ischaemia

was due, not to lack of oxygen in the muscles, but to the accumulation of toxic substances in the tissue spaces between muscular bundles when a ligatured limb was exercised. In the same article he drew attention to the occurrence of second wind in angina, but could offer no other explanation of this, than that the coronary circulation might in some way adapt itself to increased calls.

Nevertheless, while the coronary theory explains satisfactorily the pain in exertional angina and coronary infarction, it does not fully account for the second wind phenomenon and it does not tell us how the undoubted angina of emotion (apart from exertion) can occur.

The influence of emotion in the production of pain in atheromatous subjects may provide the clue to the mechanism of angina with second wind. Under conditions of excitement or apprehension adrenaline is poured into the blood stream and enhanced activity of the sympathetic system occurs. Among the effects is a generalized vaso-constriction with increased rate and force of the heart beat and a brief rise in the level of the blood pressure. In normal hearts the rise in blood pressure is sufficient to overcome the constriction of the coronary arterioles and increase the blood flow through the heart; narrowing of the coronary arteries from atheroma, however, might 'predispose to spasm of the arterioles and prevent sufficient head of pressure being developed to overcome their constriction'.[5] In emotional angina it may well be that variation in mean aortic pressure (Allbut) is also a factor in the causation of anginal pain.

It is possible that the emotion induced by the excitement of appearing on the first tee of a golf course or on to the dance floor may induce the pain of angina pectoris which will later disappear when the emotional tension has passed. Exertion does not play a prominent role in the production of this type of pain.

SUMMARY

The case histories of 2 patients showing the phenomena of angina pectoris with second wind are described. Both eventually had attacks of coronary infarction.

The mechanism of angina of effort and that of emotion are discussed and it is suggested that in second wind angina, emotional factors are responsible.

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A CARDIAC BED CHAIR

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Edenvale Hospital, Transvaal

The principle of rest to damaged parts is universally accepted. It must however, not so readily be assumed that maximum rest to the heart is obtained in the recumbent posture.

It is a striking feature, when going through hospital medical wards, that with minimal exceptions, almost all seriously ill patients are treated recumbently in bed.

Admittedly some have the chest and/or head raised on extra pillows or backrests. The exceptions sit precariously and uncomfortably dangling their legs, against nursing instructions, over the side of the bed, in an effort to obtain relief.

Few doctors have not had the common experience of witnessing patients in an attack of paroxysmal or sustained dyspnoea, sitting bolt upright in their struggle for more air. These orthopnoeic phases are due in measure to a pulmonary oedema caused by an imbalance between the 2 ventricles, resulting in a limitation of the vital capacity of the lungs. In other words, there is a state of circulatory failure on the assumption that this exists, when any tissue or the body as a whole, receives less than an optimal blood flow.

I do not propose to discuss the principle of the 'dependent legs' position. However, it would appear pertinent to quote that as far back as 1939 McMichael and McGibbon[2] found that the decrease in the vital capacity of the lungs was 200 c.c. in the recumbent position. Other investigators also have shown that the blood velocity is slowed down in this position. Perera and Berliner[3] demonstrated that in hypertensive heart failure there was haemodiultion with increased blood volume, increased venous pressure and decrease in lung vital capacity after 12 to 24 hours recumbency.

In 1951 Dock,[1] reiterating what would appear now to be generally accepted, stated that in urgent dyspnoea the best posture is sitting in an arm-chair before a table on which the patient can lean forward.

Furthermore, Levine states[4]: 'It has been our view that recumbency in bed affords less rest to the heart than the sedentary position in a chair with the feet down ..., the recumbent position encourages the pooling of fluid in the pulmonary circuit'.

It would, therefore, appear difficult to appreciate why we still persist in putting severe cardiacs to bed. Is it perhaps because 'old customs die hard', or as someone once wrote, 'Physicians have a way of walking down the narrow path of their own preconceived conviction, looking neither to the right nor to the left, or letting their eyes stray from the straight path before them. A glance at either side might often be of interest and might show something worth stopping to examine more closely'.

In full appreciation, therefore, that the idea is not

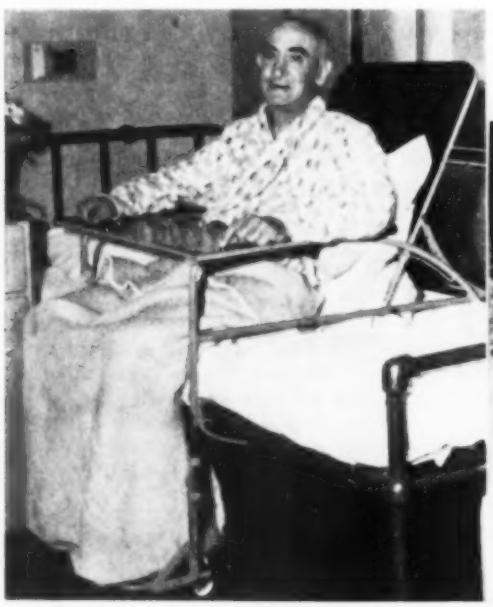
new and that similar appliances are already in use, I would like to draw attention—of particular interest to institutions—to a 'cardiac bed chair' as displayed at the recent Medical Congress in Johannesburg.

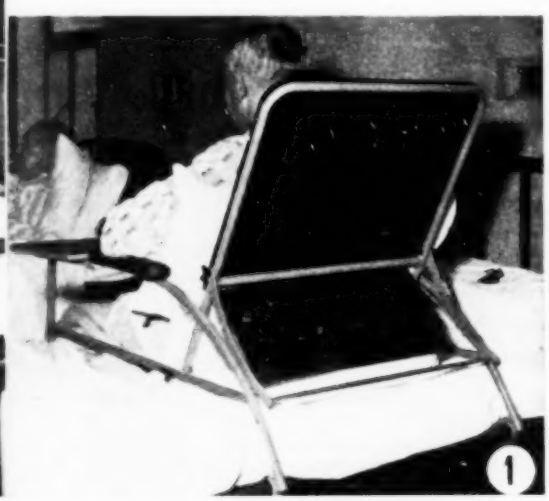
The apparatus presented is a convenient 'bed chair' of our own design. It has the advantage that it can be taken apart for storing. No doubt simpler and more efficacious appliances will become available, but we have used this particular model with great satisfaction in my department at Edenvale Hospital over the past year in many cases of cardiac failure as well as in 'acute coronaries' from their earliest onset. One can also visualize its application in other medical and surgical conditions.

We have, on occasions, after placing patients in the chair, found that improvement was sufficiently dramatic to suspect that, were it not for this 'chest up, legs down' position, the patient would surely have died prematurely. One need scarcely add that this method of posturing a patient in no way vitiates the necessity for the concomitant adoption of medicinal treatment.

Experience has shown that the effects of some of these essential adjuncts, such as cardiotonics, diuretics, low sodium diets, etc., are enhanced when the oedema is in the dependent legs rather than in the lungs.

In our limited experience the only contra-indication to the use of the chair would appear to be a state of shock in the patient. In such cases it may be necessary temporarily to lower the head and the body to the horizontal position and even to raise the legs.





Perhaps another—possibly very real—disadvantage, is the peculiar idea that it would be unpardonable if a patient were to die in the chair, whereas all would be forgiven if he died recumbent in bed.

The advantages, on the other hand, are many. I do not propose to detail them. Among these I would, however, like to make brief reference to the psychological aspect. To quote Stead[1]: 'Independent of an increase in consumption of oxygen and pulse rate, the cardiac output may be doubled in a person tense and anxious'. It has been our experience in the majority of cases that the simple act of getting the patient to sit in a chair has noticeably eased his fears and, we believe, shortened convalescence.

Another consideration worth mentioning is the fact that the complete appliance as used by us is at present supplied at the cost of £6. 17s. 6d., as contrasted with cardiac beds serving similar purposes, quoted at figures ranging from £30 to £80.

THE CHAIR

This is made to fit all standard hospital beds. It consists of 2 side pieces, an adjustable back rest, and a foot piece, i.e. 4 separate parts. Refinements consist of a masonite slab placed unattached across the armpieces in front of the patient for purposes of resting the elbows, reading, writing, eating, etc. and a flap in the lower portion of the back rest—which can, when required, be raised in order to insert a bed pan under the elevated patient. Fig. 1 shows the chair in use.

Procedure. The entire chair is built around the patient. The patient is raised from the lying position and the legs swung over the edge of the bed. One side piece is placed breadthwise across the bed on one side of him, and clamped at both ends. He may now support himself against this. The second side piece is then adjusted on the other side of the patient and similarly clamped. The back piece is then fitted at the base of the side pieces behind him. After adjustment in the upright or tilted position—down to the horizontal position if necessary—to suit the patient's comfort, it is clamped on both sides.

Pillows are then placed at the back and head. The foot rest is next adjusted so that the feet lightly and comfortably contact the resting board. The masonite slab is then placed in position and finally blankets, socks, slippers, etc. are arranged. The entire operation can usually be completed by a couple of attendants in under 2 minutes.

In many instances it has been found convenient first to assemble the chair at the bedside, then adjust it over the patient sitting with legs dangling over the side of the bed.

While our experience in this method of treatment is still limited, results have been sufficiently encouraging to recommend its wider application for a more accurate appraisal of its value in at least many cardiac and respiratory diseases.

SUMMARY

The advisability of treating patients suffering from severe cardiac or respiratory diseases in a 'chest up, legs down' position is discussed briefly. A 'bed chair' to facilitate this treatment is described.

I would like to express my appreciation of the assistance and facilities granted by the Superintendent of this Hospital in enabling me to utilize this chair in the wards; also my thanks are due to Mr. Kronenberg for the photographs.

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PASSING EVENTS

Dr. M. P. Brasch of 301 Medical Centre, Johannesburg, has changed his residential telephone number to 43-7274.

OBITUARY

The Northern Transvaal Branch of the Medical Association of South Africa regrets to announce the death of Dr. G. P. Parnell of Haenertsburg. The late Dr. Parnell, who qualified in 1899 and who practised in Haenertsburg at the time of his death, was a member of the Northern Tranvaal Branch from 1927. At the time of his death he was being considered for emeritus membership of the Association. We extend our sympathy to his widow and his family.

MEDICAL STUDENTS' COUNCIL, CAPE TOWN

Series of Lectures on Recent Advances: A Symposium on Diabetes for medical practitioners and students will be held in the Physiology Lecture Theatre of the University of Cape Town, Medical School, Mowbray, at 8.15 p.m. on Wednesday, 27 May 1953.

THE CANCER CLINIC, ROSEBANK, CAPE TOWN

The Cancer Clinic at Rosebank, Cape Town, which was officially opened by the Hon. the Administrator of the Cape Province, Mr. P. J. Olivier, on 14 February 1952, was built by the Cancer Research Trust of Cape Town with funds from private donations and equipped partly from such donations and partly with financial assistance from the Provincial Administration, on a pound per pound basis. It is to be administered by the Cancer Clinic Association with grants from the Provincial Administration, the Municipality of Cape Town, and private donations.

The Association is controlled by a Council with the function of a Hospital Board, assisted by a Medical Advisory Committee of 9 members representing various branches of medicine and surgery. A salaried and an honorary medical staff have been appointed.

The Trust and the Association are confident that the treatment facilities and research opportunities offered by this Clinic will become an asset to the medical services of this country. The Clinic will function as a social welfare institution in offering advice and treatment to patients who cannot afford to pay the expense of private treatment.

For the purpose of promoting research, the establishment of special clinics, not encumbered by routine hospital work, has been advocated in many countries. It is not the objective of such clinics to treat the maximum possible number of cases, but to devote time to the study of problems that arise and to test modes of treatment.

The following are the conditions laid down by the Council of the Association for the admission of patients, viz.:

1. Patients are accepted only on the request of a medical practitioner.

2. Patients are required to sign a declaration that they are unable to pay private fees.

The Clinic has *no beds* and accepts *out-patients only*. Patients from the country have to provide for accommodation themselves but may be assisted in finding such accommodation by the Secretary of the Clinic. In special circumstances it may be possible to find accommodation for patients in one of the Provincial hospitals.

All patients will be examined by specialists representing surgery, radiotherapy, or other branches of medicine as their condition may require. At the Clinic only radiotherapy and bio-chemical forms of treatment are provided. Biopsies are performed at the Clinic and it is requested that such biopsies should not be carried out before the patient is admitted to the Clinic. Patients requiring surgery are referred to the Groote Schuur Hospital through the intermediary of one of the surgeons attached to the Clinic.

Consulting hours at the Clinic are: Mondays and Thursdays: 3–4 p.m., Europeans. Tuesdays and Fridays: 3–4 p.m., non-Europeans.

Letters to the Clinic may be addressed: The Clinic, Liesbeek Road, Rosebank, Cape Town. Telephone: 69-4024. In this way, the word 'cancer' may be avoided in any correspondence or on any envelopes handed over to patients.

Medical practitioners will be kept informed by correspondence or telephone about patients they have referred to the Clinic.

ROCKEFELLER FOUNDATION GRANTS

The Rockefeller Foundation has issued its Quarterly Report for the first quarter of 1953 announcing new grants. Those of medical and cognate interest include the following:

$500,000 (conditional) to the American University of Beirut, Lebanon, for the development of the University's medical division, which includes a modernization programme for the Medical School; $250,000 (conditional) to Stanford University, California, for research in biology; $125,000 to the University of Pennsylvania, for research in zoology; $121,000 to the Indian Council of Medical Research for post-graduate medical fellowships, particularly in the training of persons to teach in India's medical colleges; $115,000 to the Johns Hopkins University, Baltimore, Maryland, towards a programme of bio-chemical research; $80,000 to Cornell University, Ithaca, New York, towards research on factors affecting maximum yields of food crops; $75,000 to Princeton University, New Jersey, as a final grant for research in perception in the Department of Psychology; $60,000 to the University of Minnesota, Minneapolis, for research on genic potentialities in wheat and its important pathogens; $45,000 to the University of North Carolina for a study of medical practice by the Division of Health Affairs; $40,000 to Simmons College, Boston, towards the establishment of a graduate course in public-health nursing in conjunction with the Harvard School of Public Health, designed to prepare nurses to fulfil administrative and teaching posts; $61,920 to the London School of Hygiene and Tropical Medicine, England, towards research and experimentation in public-health practice; £26,400 to the Welsh Regional Hospital Board, Cardiff, Wales, for the Neuropsychiatric Research Centre at Whitchurch Hospital; $20,000 to the Institute of Agronomy, Campinas, São Paulo, Brazil, for equipment for climatological research; $15,000 to the University of Leiden, Netherlands, for equipment in Experimental Histology; $12,640 to the University of Lund, Sweden, for research in endocrinology; $9,000 to the University of Upsala, Sweden, for research on the chemistry of large molecules in the Institute of Medical Chemistry; $4,200 to the University of Stockholm for research in radio-biology.

Many smaller grants made to institutions and persons in many parts of the world in the first quarter of 1953 are also recorded, including a number for the promotion of medical and allied sciences.

ATLAS OF THE SKELETAL DEVELOPMENT OF THE RAT

The American Institute of Dental Medicine, 2240 Channing Way, Berkeley 4, California, U.S.A., a newly established non-profit organization incorporated under the laws of the State of California, is publishing an Atlas of the Skeletal Development of the Rat, Normal and Hypophysectomized, which will be ready some time in May.

The Atlas, which is in 2 volumes, contains 145 pages of photomicrographs and roentgenographic contact reproductions (8½ × 11 inches) with a text of approximately 45 pages. The material is the result of 14 years of intensive research by a collaborative team of the Institute of Experimental Biology and the Division of Dental Medicine, both of the University of California.

Volume I includes low-power photomicrographs of the tibia, femur, humerus, mandibular joint, 3rd metacarpal bone, 3rd costochondral junction, 9th caudal vertebra, upper incisor and 3rd lower molar of the normal and hypophysectomized rat. On the opposite side the roentgenographic aspect of these bones is shown in natural size (age ranges from 1 to 1,316 days).

Volume II presents higher magnifications of the various osseous centres arranged for comparison of normal and hypophysectomized rats of the same ages. The roentgenograms of these bones are arranged in the same order.

The 2 volumes are excellent in the fulfilment of their purpose—extremely helpful to students, teachers and investigators in the field of the biological sciences or institutions where the Long-Evans strain rat is used for experimental purposes.

The edition will be limited to 300 copies. Price $48.00.

INTERNATIONAL SOCIAL SECURITY ASSOCIATION SEEKS BETTER RELATIONS WITH WORLD MEDICAL ASSOCIATION

The International Social Security Association states that discussions designed to pave the way to better understanding between 700,000 members of the World Medical Association in 42 countries and the world's social security institutions and agencies have been announced in Geneva.

A spokesman for the International Social Security Association, an organization of 90 institutions administering different branches of social security for 120 million persons in 39 countries, described efforts being made to obtain the co-operation of physicians for the smoother functioning of insurance schemes—voluntary as well as compulsory.

He said that the 2 associations hoped in the not-too-distant-future to arrive at an international understanding which could serve as a basis for commencing negotiations at the national level between social security administrations and organizations of doctors.

He underlined that in many countries the problem had been successfully considered already, but that in most countries where there were sickness schemes, difficulties arose from time to time which hampered the furnishing of medical care on the most harmonious, efficient and economical basis possible.

The spokesman for the I.S.S.A., the seat of which is in Geneva, said:

'The maintenance of satisfactory co-operation between the medical profession and sickness insurance institutions—whether compulsory or voluntary—is indispensable if the insured community is to be properly served. Yet such co-operation has often been difficult to establish by reason of misunderstandings and even of a conflict of interests.

'In the hope that, at the international level, it might be possible to consider problems in a more objective light, and to work out guiding principles of a just and reasonable nature, the 2 international bodies which represent the parties are preparing to come together for discussion.'

He mentioned that, as a first step, the I.S.S.A. had decided to place the problem on the agenda of its Eleventh General Meeting in Paris in September 1953.

Twenty-eight countries have answered a questionnaire sent out by the I.S.S.A. More than 60 experts will discuss the problem at a meeting to be held in Düsseldorf, Germany, from 4 to 8 May.

A report on the result of the Düsseldorf meeting will be presented to the General Meeting which, in turn, will define the position of the administration as a basis for the efforts to be undertaken by the I.S.S.A. in co-operation with the W.M.A.

REVIEWS OF BOOKS

BCG VACCINATION

BCG Vaccination. Studies by the WHO Tuberculosis Research Office, Copenhagen. Report prepared under the direction of L. B. Edwards, M.D., and C. E. Palmer, M.D., Ph.D. (Pp. 307. 15s.) Geneva: World Health Organization. South African agents: Van Schaik's Bookstore, Pretoria. 1953.

Contents: 1. Scope, Methods and Material of the Investigation. 2. Pre-vaccination Tuberculin Sensitivity. 3. Response to BCG Vaccination. 4. Effect of Temperature and Duration of Storage of BCG Vaccine. 5. Effect of Exposure of BCG Vaccine to Light. 6. Variations in the Technique of Intracutaneous BCG Vaccination. 7. Variations in the Preparation of BCG Vaccine. 8. BCG Vaccine from Different Production Centres. 9. Effect of Diluting BCG Vaccine, and the Significance of Dead Organisms. 10. General Summary. Appendices I, II and III.

Tuberculosis constantly threatens the health and lives of peoples throughout the world and, because immediate full control of this disease is not possible, hopes of prevention on a large scale have become centred on vaccination with BCG. However, when the tuberculin-testing and vaccinating of many millions of people were carried out, certain serious problems, such as the unexplained failure, in some areas, of vaccination to induce sufficient tuberculin allergy, were encountered. It was then pointed out that there existed very little precise information about the vaccine itself, its variability, its keeping qualities, how it should be applied, and particularly its immediate and long-term effects.

It was with these points in view that the WHO Tuberculosis Research Office, in collaboration with the Danish Statens Seruminstitut and the International Tuberculosis Campaign, undertook an intensive investigation of basic problems of tuberculosis immunization, with special reference to BCG.

The results of the work done during the first 3 years of the research programme are assembled in a detailed report which has just appeared as No. 12 in the Monograph Series of the World Health Organization. This monograph is an important contribution to the understanding of the problems involved in BCG vaccination.

The investigation reported in this monograph consisted of a series of separate studies, each concerned with one or more problems regarding BCG vaccination. The subjects examined include: effects on the vaccine of long-continued storage, heat, and light; changes in the technique of intracutaneous vaccination; variations in the preparation and concentration of the vaccine; mixtures of living and dead bacilli in different proportions; and the variability of vaccines prepared by different producers.

Altogether, more than 40,000 school-children in Denmark, Mexico, Egypt, and India were given pre-vaccination tuberculin tests, on the basis of which some 23,000 were vaccinated. Post-vaccination examinations were carried out 2–3 months, one year, and 2 years later and included measurement of reactions to an intracutaneous tuberculin test, measurement of the scar at the site of vaccination and observation of the local complications of the vaccination.

Complete quantitative data for all the tests and examinations, constituting a 'source book' for all workers in this field, are given in tabular form as appendices.

AGEING

An Unsolved Problem of Biology. An Inaugural Lecture Delivered at University College, London, on 6 December 1951. By P. B. Medawar. (Pp. 24, with 3 illustrations. 5s.) London: H. K. Lewis & Co. Limited. 1952.

This interesting inaugural lecture by Professor Medawar deals with the problem of *Ageing: Its Origin and Its Evolution.* The biological approach which the author has adopted is refreshing and stimulating and deserves a wide attention amongst medical practitioners.

CORRESPONDENCE

ON THE AETIOLOGY OF PELLAGRA AND KWASHIORKOR

To the Editor: A great deal has recently been written about the malnutrition syndrome of Kwashiorkor and to my mind there has been enough 'splitting of hairs' now in this respect. Are we not failing 'to see the wood for the trees' by attributing such pathognomonic significance to skin and hair changes in malnourished children? I agree with the Senior Pediatrician of the Baragwanath Hospital, Johannesburg—in his letter to the Editor of the *Lancet* of 7 March 1953—that, basically, Kwashiorkor is probably as much due to faulty protein nutrition (or rather protein undernutrition) as the classical syndromes of infantile malnutrition, hypothrepsia, Mehlnahrschaden, dystrophy, etc.

My contention is that when Cicely Williams (who introduced the word Kwashiorkor) has already declared herself willing to diagnose an infant 'with slight . . . in the absence of pigmentary changes'* as a case of Kwashiorkor, then Brock and Autret are, I think, hardly justified in singling out skin and hair pigmentation for so much special attention as they do: certainly not, when Cicely Williams herself has, so to say, 'thrown in her hand' already, and when pigmentary hair changes (more often than not) take several weeks, even months, to show up. By that time any infant which is being weaned on an exclusive high-cereal diet without milk, might not only be dead, but might, moreover, have died with hair showing no depigmentation at death. Would this mere lack of pigmentation give us the right to say that the infant never suffered from Kwashiorkor (*alias* protein hunger)? No, if Kwashiorkor denotes a malnutrition syndrome or protein hunger, we should 'call a spade a spade' and not red hair!

I heartily agree with Dr. Kahn therefore, where he pleads, in his letter to the *Lancet*, for more circumspective use of the word Kwashiorkor to signify, chiefly, pigmentary changes in skin and hair as 'potential signs of malnutrition in dark-skinned races'.

And for Brock and Autret to attribute this pathognomonic significance to changes in hair and skin for etymological reasons might, one feels, even embarrass Cicely Williams herself. I think Cicely Williams, Brock and Autret—all 3 of whom I have had the privilege to be professionally associated with in a rather personal way, over fairly long periods of time—are agreed that the time has probably arrived for us to be less insistent on waiting for the rather artificial syndrome of pigmentary changes, and to look for other criteria, earlier and more valid, than the mere absence of pigmentary changes, to diagnose, not necessarily Kwashiorkor, but early faulty nutrition, particularly in respect of lack of proteins of high biological value.

J. M. Latsky,
Chief Nutrition Adviser.

State Department of Nutrition,
Pretoria.
18 April 1953.

*. . . 'with slight swelling of the feet, or with unaccountable peevishness, or with failure to gain weight, in the absence of pigmentary changes'. . . .

WORKMEN'S COMPENSATION ACT

To the Editor: I hope that the appeal by *Brandarmoe* to the Association to take firm action against 'employers of medical labour . . . who are guilty of underpricing and responsible for the lowering of the standards of living of the medical practitioner' will not lightly be dismissed. I would like to include the pernicious Workmen's Compensation Act particularly.

We, as a profession, are expected to treat injured workmen and the Workmens' Compensation Commissioner apparently has the autocratic and arbitrary power to reject or reduce a claim without any explanation or possible appeal or redress.

To quote but 2 recent instances: I treated a workman who submitted a report from his employer stating that he had been injured during the course of his work and asking that he be treated under the Workmens' Compensation Act. The workman's finger had been caught under a clipper machine, sustaining a traumatic amputation with bone protruding. I performed an amputation. After a lapse of a year I received the usual buff-coloured card labelled W.C.1. 9 with the customary curt comment: 'that the said claim has not been accepted—therefore I am not in a position to authorize payment of the account'.

Recently I was called to attend an employee who had fallen off a ladder. He sustained a fracture of 3 lumbar vertebrae, a Colles' fracture and a fracture-dislocation of his foot. I gave him an injection of morphia and telephoned 4 hospitals, an orthopaedic surgeon and ultimately the ambulance—a total expenditure of 2s. (6 calls at 4d. each). After discharge from hospital, the workman reported back to me and I arranged further appointments and ambulance transportation. After the lapse of a year when the case was eventually finalized I received the princely sum of 8s. 1d.

I mention these illustrations quite apart from the fact that the Standard Fees as laid down in the Official Handbook of the Act No. 30 of 1941 are ridiculously low, even if one takes into consideration their most generous increase of 7½%. I fail to see how the Medical Association can accept a fee of £3 for an amputation of a metacarpal with a generous allowance of a further 50% for each additional metacarpal amputated. Should the surgical procedure be performed on a black skin, the fee is exactly one-half of that quoted. Presumably black skins render them more amenable to surgery.

I believe the Fund has a surplus of something in the vicinity of £3,000,000 so that poverty cannot even be offered as extenuating circumstances.

Surely it is time that the Association, who presumably protects the interests of practitioners, took a strong stand in the matter. The Medical Council does not hesitate to take action against practitioners in cases of alleged overcharging. Does the reverse position also not warrant their attention?

Parow. *Compensitis.*
22 April 1953.

AMYOPLASIA CONGENITA OR ARTHROGRYPOSIS MULTIPLEX CONGENITA

To the Editor: I have just finished reading the illuminating article by Drs. R. McDonald, L. Shore and J. Rabkin, in yesterday's *Journal* on *Amyoplasia Congenita*, or, as it is much more commonly called in practice, *Arthrogryposis Multiplex Congenita* (literally, congenital curved joints), and I would like to make a few observations.

It is not my purpose to criticize the authors of this paper, but one statement I cannot allow to go unchallenged, viz. 'The children are usually treated for the associated deformities, the primary disease not being recognized'. Whilst I can recall having seen only one classical case in Cape Town, and that in 1947, I have seen a few sufferers from the condition in England, and I cannot believe that any orthopaedic surgeon would miss the diagnosis in a 'full-blown' case. Occasionally the diagnosis may be difficult, and it may be almost impossible to differentiate it from an old-standing atypical cerebral palsy with multiple joint-contractures.

In more localized forms the diagnosis is also unlikely to be missed. Before he commences treatment of one of the common congenital anomalies, the orthopaedic surgeon automatically excludes the possibility of an underlying arthrogryposis, because it so adversely affects the prognosis!

It would appear that in this condition, embryonic development of muscles in early foetal life occurs. Then a muscular degeneration ensues. This prevents normal rotation of the limbs. The joints become differentiated, but owing to absence of foetal movements, stiffness results. Owing to the failure of limb rotation, the typical position found in the condition corresponds to the normal foetal position at the end of the third month. Thus the lower limbs remain laterally rotated, whilst the upper limbs remain medially rotated, with the patellae and olecranon processes pointing outwards. It is well illustrated by the position of the lower limbs and left upper limb of Fig. 1 of the article. Owing to the failure of limb rotation, the normal differentiating creases separating the limbs from the trunk are absent.

In addition a characteristic feature found is deficiency of the transverse creases across the flexor surfaces of the joints.

This may be accompanied by dimpling over the patellae and olecranon processes.

The micrognathia, so well depicted in Fig. 1, is a common finding, and is associated with an additional indescribable quality of the mouth. Together these appearances are reputed to be so typical that I have seen a post-graduate class asked to make the diagnosis on the facial appearance alone, the child only having the head and face exposed above the bedclothes.

I do not intend alluding to the special features of such associated deformities as the dislocated hip and club-foot of arthrogryposis, but find the reference of the authors to Price's case with associated arachnodactyly most interesting. Arachnodactyly is regarded as a specific syndrome. Not only does one get the long spider-like fingers with additional phalangeal and metacarpal epiphyses, but there are manifestations in other parts of the body, e.g. scoliosis and a high palate, deformity of the skull and congenital dislocation of the lens. I have not read Price's article as yet, but the fact that incidental arachnodactyly was present in her case, leads us to consider the possibility or even probability that many different and even apparently unrelated congenital anomalies may have the same basic pathogenesis. Thus the same etiological factor acting on the embryo at one stage of its development may produce one deformity and at another stage in its development an entirely different one.

Duraiswami's work on chick embryos supports this contention. By regulating his dose of insulin and choosing selective times for his injections, he can, for example, produce in the chick a club-foot or again a picture closely resembling the human arthrogryposis, at will. This would suggest that the primary defect in all these deformities is one of the connective tissues, and in the case of arthrogryposis, not one of the ectodermal neurological system.

I was further interested to read of the references to the mental state of affected children. In the handling of physically crippled children who have normal mentalities, possibly the most important and most difficult problem is to prevent the development of a 'crippled mentality' so prevalent in some. A friend of mine overseas told me this story about a prominent dignitary visiting a home in England. He came up to the worst deformed child in the institution, an arthrogrypotic, who however was alert to a degree found possibly only in children with this type of deformity. He asked the child how he like the home. The child replied that it would be quite all right 'if there weren't so many cripples around me!'

This type of patient illustrates our need to persevere, despite the hopeless odds, to try and correct the deformities. Yet it is most disheartening. My last recollection of personal contact with the subject is very vivid—a most beautiful baby with a bright smiling face lay covered up on the theatre table. The anaesthetic mask was lowered on his face. The child was asleep. The limbs were uncovered, revealing the grotesque deformities of a child hopelsssly crippled. And yet the surgeon had to try. I never saw that child again, but one wondered whether it would have been best for that bright merry face to have to face the world or whether nature would have been kinder to end it all with some intercurrent infection as in the case of the 2 patients described by the authors.

Norman Rosenzweig.

405–6 Diamond House,
Corner of Longmarket and Parliament Streets,
Cape Town.
26 April 1953.

THE REGISTRATION OF SPECIALISTS

To the Editor: I received, yesterday, a letter from Dr. G. W. Schepers, the Chairman of a new fund called the 'Medical Practitioners Legal Fund'. According to the heading it has been sent 'To All Registered Medical Practitioners', therefore, there is no need for me to state its objects.

I wish however to reply to the letter and give my reasons for not giving it my 'whole-hearted moral and financial support' and as I cannot send letters to all registered medical practitioners, I am asking you to print this in the correspondence columns in order that it may reach very many of my colleagues.

As an active member of the Medical Association for many years I consider it is entirely wrong for a 'well-attended meeting of general practitioners held in Johannesburg' to take separate action of this nature. No mention is made of the actual numbers present, nor is it stated that it was a meeting of the national General Practitioners Group of the Association. At any rate the numbers present must have represented a very small percentage of the registered medical practitioners in the Union.

It appears to me that the proper democratic way of dealing with the matter would have been to have it discussed by the whole Association. It must be remembered that the Medical Association approached the Medical and Dental Council in 1936 and asked 'that specialists shall be registered' and that it was because of this request that the Medical Council instituted this register. It is possible that certain clauses passed by the Medical Council at that time may have been contrary to the wishes of many practitioners but we must accept it that its members acted in good faith. Incidentally I believe there is only one of these members (not a medical practitioner) on the present Council.

To me it seems that the proper attitude is for the Association to debate the whole problem and if it is convinced that the working of this register during the past 15 years has been detrimental to the welfare of the profession and the public, then the Association should approach the Medical Council again with a reasonable and reasoned case for the abolition of the register but should at the same time present it with a reasonable substitute.

Needless to say however, such a proposition must come from the Association, not from a section of the Association.

To me the 'testing forthwith in the courts of Law the validity of the present rules of the S.A. Medical and Dental Council for the registration of specialists' seems quite unnecessary. I have now been a member of the Medical and Dental Council for over 4 years and I can assure you that its members would only be too pleased to give serious consideration to any plan presented by the Association, provided that such a plan is likely to bring about an improvement on the present position. In fact many, if not most, members, including myself, would be very pleased to see adopted some other satisfactory scheme which would take the matter completely out of the hands of the Council.

Having acted as Chairman of the Specialist Committee of the Council for over 3 years, I know the huge amount of work entailed. I know probably better than most members of the Council and the profession the difficulties which confront the Committee in its attempts, in carrying out the regulations, to be fair to the applicants, and I know all the arguments in favour of and against the regulations. Unfortunately I have been unable to think out a better alternative scheme at present. Has any one done so? Not as far as I have seen or heard. This is where the difficulty arises. There is the rub. It is easy to be destructive but much more difficult to be constructive. Many seem to expect the Council to produce by magic some ideal scheme acceptable to all, as a conjurer produces a rabbit out of a hat.

I can assure you it is no easy task, but I am strongly of opinion that it is a problem which for its solution requires the most friendly discussion and co-operation between the Medical Council and the Association. As a member of the Council I can only say that I would welcome the Association's help in arriving at a satisfactory solution of the problem, but I cannot see that testing the matter in the courts is going to help at all. It might lead to chaos which I wish to avoid and I cannot agree with Dr. Shapiro's remark in his memorandum on the subject that: 'The Council need not fear that by abolishing statutory registration a state of chaos will be precipitated'. I *do* fear that the sudden abolition of statutory registration 'until something better has been provided to take its place' (my words) would lead to chaos because so much of the profession's remuneration is dependent on arrangements which have been entered into between the Association and Government and Provincial departments, Medical Aid and Benefit Societies, etc., etc. on the present set-up.

Let us build before we destroy.

James Black.

89 Lister Buildings,
Jeppe Street,
Johannesburg.
27 April 1953.

S.A. Medical Journal

S.A. Tydskrif vir Geneeskunde

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The Medical Association of South Africa : Die Mediese Vereniging van Suid-Afrika

AGENCY DEPARTMENT : AGENTSKAP-AFDELING

JOHANNESBURG

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Mediese Huis, Esselenstraat 5. Telefone 44-9134-5, 44-0817

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(L/V367) O.V.S. Assistent benodig om so spoedig moontlik te begin. Moontlike vennootskap.
(L/V349) Plaasvervanger vir Mei maand. Eie kar nodig. Salaris £2 10s. per dag, vry losies, petrol en olie en 6d. per myl reistoelae.
(L/V366) Wes-Transvaal. Plaasvervanger benodig vir Junie. Salaris £2 12s. 6d. per dag, vry losies en 'n kar sal verskaf word. Reiskaartjie sal betaal word.
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(I/O47) Wax bath. £12.
(I/O48) Complete set arms and legs water bath. £12.
(I/O49) Short-wave Diathermy (Luckenbach). Excellent condition. £100.
(I/O50) Prometheus Lamp for theatre on high adjustable stand, in excellent condition. Price £15 o.n.o.
(I/O51) Siemens Ultra-therm, short-wave, has done 179 hours. New valve recently. Price £120.
(I/O52) Philips Practix Portable X-ray unit, almost new. Collapsible stand. Fluoroscope, casettes, darkroom accessories, etc. A.C. 220V. 72KVP. Tropic-proof. Price £350.

* * * *

DURBAN

112 Medical Centre, Field Street. Telephone 2-4049

PRACTICES FOR SALE : PRAKTYKE TE KOOP

(PD13) Natal Lower South Coast practice, near Pondoland border, suitable for retired doctor. Area developing and large Police holiday camp in vicinity. Excellent climate and very good fishing. Premium required £400, includes good stock of drugs and dressings, instruments and dispensary furniture. House for sale £1,800, including stand of one-third morgen. Bond available. For immediate sale. Owner having taken a full-time appointment.
(PD15) General practice established 1941 at pleasant residential and seaside resort about 10 miles south of Durban. Annual income approximately £1,000. No major surgery, minimum of minor surgery and only emergency midwifery being done at present. Brick house with consulting room attached, for sale at £5,250. Owing to ill health owner wishes to retire from practice as soon as possible. Premium £1,000 including drugs, surgery and dispensary furniture.
(PD19) Eastern Pondoland. General country practice suitable for husband and wife. District Surgeoncy vacant. Gross receipts 1950, £2,114; 1951, £2,235; 1952, £2,221. Premium £500 includes drugs and furniture. One appointment. Practice and house for immediate sale.
(PD20) Natal South Coast. General mixed prescribing practice with 2 surgeries 11 miles apart. Premium £1,000 plus £200 for full equipment of 2 surgeries. Large proportion of the patients are European visitors, and Indians. A lucrative Native practice could be built up if dispensing was carried out. Immediate introduction.
(PD21) East Griqualand. General mixed practice with net profit of £3,000 annually. Excellent prospects. Premium £2,150.
(PD22) Natal. Prescribing and dispensing country practice. Total gross receipts for 1951, £3,344 15s. 9d.; 1952, £2,817 10s. 6d.; 1953 (3 months), £846 6s. 10d. Premium £1,500. House for sale £6,500.
(PD23) Natal. Prescribing practice particularly suitable for a woman doctor interested in obstetrics and gynaecology. Total gross receipts for 1950, £1,570; 1951, £1,595; 1952, (6 months), £1,340; 1953 (3 months), £382. Premium £1,250, includes furniture, fittings, instruments, drugs and existing book debts.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(134) Zululand. From 20 June to end of July. £3 3s. per day, plus board and lodging. Locum must be bilingual and possess own car.
(137) Month of July. East Griqualand. Largely Native, very little night work. Small hospital and occasional D.S. duties. £3 per day, plus board, lodging and equivalent of 1st class rail fare. Car will be provided, but if locum uses own car, allowance will be made.
(138) Assistant required immediately in general country practice near Pietermaritzburg. £1,000 per annum. Two appointments. Very little surgery or midwifery. Should possess own car.

* * * *

KAAPSTAD : CAPE TOWN

Posbus 643, Telefoon 2-6177 : P.O. Box 643, Telephone 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(895) Partnership share in practice of Specialist Physician. Details on application.
(1132) East Griqualand. Opportunity for highly lucrative unopposed practice. Rich European farming area bounded by large native territory. D.S. appointment. Beautifully built large 7-roomed house on 3 erven. New Diesel lighting plant fully automatic generating 230 volts. £4,000 required for house, lighting plant, stock of drugs. Easy terms.
(1276) S.W.A. VERY WELL-ESTABLISHED PRESCRIBING PRACTICE with cash income for 1952 of £3,831 11s. £1,600 required for premium, instruments and excellent surgery furniture. Full scope for surgery. Owner wishes to sell in order to specialize and is prepared to give easy terms.
(1115) Cape Town suburban practice. Details on application.
(1280) Eastern Cape dispensing practice with a large native population. Gross receipts £3,151. Premium required £1,500 including drugs, fittings and furniture. Modern house for sale at £3,500.
(1356) Very well established CAPE TOWN SUBURBAN PRACTICE. Outright sale or alternatively partnership share available to Gentile purchaser. Excellent opportunity to acquire a good class practice. Details on application.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(1361) Westelike Provinsie hospitaaldorp vanaf 15 Junie of so gou moontlik daarna vir 3 weke. Verkieslik 'n plaasvervanger met ervaring. Salaris en diensvoorwaardes kan gereël word.
(1365) Northern Suburb, Cape Town. From 20 June for 15 days. £3 3s. per day plus board and lodging plus 10s 6d per day car allowance.

Natal Provincial Administration

VACANCIES: SENIOR MEDICAL OFFICERS

Applications are invited from registered medical practitioners for appointment to the following posts:

King Edward VIII Hospital, Durban.

(a) Two posts in the Obstetrics and Gynaecology Department.
(b) Surgery Department.
(c) Department of Medicine.
(d) General Duties.
(e) Anaesthetic Department.
(f) Ophthalmic Surgery Department.

Grey's Hospital, Pietermaritzburg.

(a) Obstetrics Department.
(b) Out-patients Department—2 posts.

Wentworth Hospital, Durban.

General Duties (Fevers, T.B., Chest Surgery).

Vryheid and Newcastle Hospitals.

General duties.

Appointment is on 12 months contract, and the salary attached to the posts is as follows:

Two years service after qualifying: £500 per annum plus free quarters or an allowance in lieu thereof.

Three years service after qualifying: £600 per annum plus free quarters or an allowance in lieu thereof.

Four years service after qualifying: £700 per annum plus free quarters or an allowance in lieu thereof.

Five or more years service after qualifying: £800 per annum plus free quarters or an allowance in lieu thereof.

In addition to the foregoing salary, a temporary cost-of-living allowance is also payable.

Applications, giving full details of experience and qualifications, should reach the Director, Provincial Medical and Health Services, P.O. Box 20, Pietermaritzburg, by 3 June 1953. (AD7625)

Natalse Provinsiale Administrasie

VAKATURES: SENIOR MEDIESE BEAMPTES

Aansoeke om aanstelling in ondervermelde poste word van geregistreerde mediese praktisyns ingewag:

Koning Edward VIII Hospitaal, Durban.

(a) Twee poste in die Verloskunde en Ginekologie Afdeling.
(b) Snykunde Afdeling.
(c) Medisyne Afdeling.
(d) Algemene Pligte.
(e) Narkose Afdeling.
(f) Ophthalmies Snykunde Afdeling.

Grey's Hospitaal, Pietermaritzburg.

(a) Verloskunde Afdeling.
(b) Twee poste in die Buite-pasiënte Afdeling.

Wentworth Hospitaal, Durban.

Algemene Pligte (Koors, Longtering, Borssnykunde).

Vryheid en Newcastle Hospitale.

Algemene pligte.

Aanstelling is op 12 maande kontrak, en die salarisskaal verbonde aan die poste is as volg:

Twee jaar diens na afstudering: £500 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

Drie jaar diens na afstudering: £600 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

Vier jaar diens na afstudering: £700 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

Vyf of meer jaar diens na afstudering: £800 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

'n Tydelike duurtetoeslag teen heersende staatsdienstariewe is ook betaalbaar.

Aansoeke met volledige besonderhede betreffende ervaring en kwalifikasies moet aan die Direkteur van Provinsiale Mediese en Gesondheidsdienste, Posbus 20, Pietermaritzburg, gerig word, sodat hulle hom voor of op 3 Junie 1953, bereik. (AD7625)

Natal Provincial Administration

VACANCIES: SENIOR MEDICAL OFFICERS: ADDINGTON HOSPITAL

Applications are invited from registered medical practitioners for appointment to the following posts:

(a) Orthopaedic Department.
(b) Ear, Nose and Throat Department.
(c) Pediatric Department.
(d) Anaesthetic Department.
(e) General Duties.
(f) Coloured Casualty and Out-Patients Department.

Appointment is on 12 months' contract, and the salary attaching to the posts is as follows:

Two years service after qualifying: £500 per annum plus free quarters or an allowance in lieu thereof.

Three years service after qualfying: £600 per annum plus free quarters or an allowance in lieu thereof.

Four years service after qualifying: £700 per annum plus free quarters or an allowance in lieu thereof.

Five or more years service after qualifying: £800 per annum plus free ouarters or an allowance in lieu thereof.

In addition to the foregoing salary, a temporary cost-of-living allowance is also payable.

Applications, giving full details of experience and qualifications, should reach the Director of Provincial Medical and Health Services, P.O. Box 20, Pietermaritzburg, by 31 May 1953.

(AD7613)

Natalse Provinsiale Administrasie

VAKATURES: SENIOR MEDIESE BEAMPTES: ADDINGTONHOSPITAAL

Aansoeke om aanstelling in ondervermelde poste word van geregistreerde mediese praktisyns ingewag:

(a) Ortopediese Afdeling.
(b) Oor, Neus en Keel Afdeling.
(c) Kindersiekte Afdeling.
(d) Narkose Afdeling.
(e) Algemene Pligte.
(f) Afdeling vir Kleurlingongevalle en -buitepasiënte.

Aanstelling is op 12 maande kontrak, en die salarisskaal verbonde aan die poste is as volg:

Twee jaar diens na afstudering: £500 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

Drie jaar diens na afstudering: £600 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

Vier jaar diens na afstudering: £700 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

Vyf of meer jaar diens na afstudering: £800 per jaar plus vry kwartiere of 'n toelae in plaas daarvan.

'n Tydelike duurtetoeslag teen heersende staatsdienstariewe is ook betaalbaar.

Aansoeke met volledige besonderhede betreffende ervaring en kwalifikasies moet aan die Direkteur van Provinsiale Mediese en Gesondheidsdienste, Posbus 20, Pietermaritzburg, gerig word, sodat hulle hom voor of op 31 Mei 1953, bereik. (AD7613)

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

VACANCY: MEDICAL STAFF

Applications are invited from registered medical practitioners for appointment to the post of medical practitioner, Grade B, on the staff of the Provincial Hospital, Port Elizabeth, with salary at the rate of £720 × 40—£960 per annum.

In addition to the rate of pay indicated a variable cost-of-living allowance at rates prescribed from time to time by the Administrator of the Province, is payable. (Current rates: Married men, £320 per annum; Others, £100 per annum.)

The privileges of free board, quarters and laundering are not attached to this post.

The conditions of service are prescribed by the Hospital Board Service Ordinance No. 19 of 1941 (Cape) and the regulations framed thereunder.

Applications must be made on the prescribed form (Staff 23), which is obtainable from the Medical Superintendent of the Provincial Hospital, Gipson Road (P.O. Box 80), Port Elizabeth, to whom applications must be addressed to reach his office as soon as possible.

The successful applicant will be required to commence duties on 1 July 1953 or as soon as possible thereafter.

Port Elizabeth
5 May 1953 (10316)

Natal Provincial Administration

VACANCIES: VISITING MEDICAL STAFF: ADDINGTON AND KING EDWARD VIII HOSPITALS

Visiting Assistant Anaesthetist, Addington Hospital.

Inclusive emoluments—£400 per annum.

The successful applicant will be required to attend at 3 operation sessions, 2 of which may be morning sessions. Some of the sessions may be at Wentworth Hospital. Experience in anaesthesia for thoracic surgery will be a recommendation.

Visiting Neuropsychiatrist, King Edward VIII Hospital.

Inclusive emoluments—£750 per annum.

Canvassing of members of any Provincial or Hospital Committee will disqualify candidates.

Applications should reach the Medical Superintendents by 13 June 1953.

(AD7632)

The Divisional Council of the Cape

VACANCY FOR HOUSE PHYSICIAN

DR. A. STALS MEMORIAL SANATORIUM

Applications are invited from registered medical practitioners (male or female) for the under-mentioned vacancy at the Dr. A. J. Stals Memorial Sanatorium, Retreat.

House Physician: Fixed salary of £360 per annum plus temporary cost-of-living allowance which at present is £320 per annum for a married man and £176 16s. per annum for a single person, plus quarters and rations or £126 per annum in lieu thereof.

The services of the successful applicant will be required from 1 July 1953, or as soon as possible thereafter.

The Sanatorium has 450 beds for non-European female and child Tuberculosis sufferers.

Applications giving details of qualifications and experience, age, marital state and whether prepared to live out (as available quarters are limited) should be addressed to reach the undersigned not later than 9 a.m. on Monday, 8 June 1953.

G. O. Owen
Secretary

6 Dorp Street
Cape Town
7 May 1953 (10908)

Transvaal Provincial Administration

VACANCIES: TRANSVAAL PUBLIC HOSPITALS

Applications are invited from suitably qualified candidates for the undermentioned posts at Public Hospitals in the Transvaal.

Applications should be addressed to the Medical Superintendents of the undermentioned Hospitals concerned and should contain full particulars as to the age, professional and academic and language qualifications, experience and conjugal status of the applicant and should further indicate the earliest date upon which duties can be assumed. Copies, only, of recent testimonials to be attached.

Cost-of-living allowance payable at present to full-time employees:

Salary	*Cost-of-living Allowance*	
	Married	*Single*
Over £350 per annum	£320 per annum	£100 per annum

Full-time employees receive in addition to their salaries and cost-of-living allowance, the following privileges:

Leave and rail concession.

Successful candidates will be required to submit satisfactory certificates as also to submit to a medical examination at the hospital concerned.

Application forms are obtainable from any Transvaal Provincial Hospital or the Provincial Secretary, Hospital Services Branch, P.O. Box 2060, Pretoria.

The closing date of applications for undermentioned posts will be 3 June 1953.

Hospital	*Post*	*Emoluments*	*Remarks*
Pretoria	Junior Surgeon (Department of Orthopaedics) (1)	£1,200×50—1,500	Registered medical practitioner.
Coronation, Johannesburg	Orthopaedic Registrar (1)	£620—780—820—860	Registered medical practitioner for at least two years.
Pietersburg	Clinical Assistant	£620—780—820—860	Registered medical practitioner.
Pretoria (Department of Orthopaedics)	Clinical Assistant	£620—780—820—860	Registered medical practitioner.

(40923)

The South African Institute for Medical Research

Applications are invited from suitably qualified medical practitioners for the following posts in the Pneumoconiosis Unit at the South African Institute for Medical Research.

(a) Senior Pathologist.
(b) Junior Pathologist.

The Unit is situated in the Institute but works in close conjunction with the Silicosis Medical Bureau. The appointees will be responsible for morbid anatomical and histopathological work on behalf of the Bureau.

It will also be their duty to carry out research into the problems of pneumoconiosis with special reference to South African conditions. For this purpose the Unit will be granted all necessary facilities and, in some problems, will work in conjunction with the Physiological Research Unit situated at the Silicosis Medical Bureau.

The salary scales attached to the posts are as follows:

(a) Senior Pathologist—£1,450 × 100—£1,850.
(b) Junior Pathologist—£1,000 × 100—£1,400.

In addition each post carries a cost-of-living allowance which at present is approximately £240 per annum.

Further details are given in a memorandum which may be obtained on application to the Business Manager, South African Institute for Medical Research, P.O. Box 1038, Johannesburg.

Applications with full *curriculum vitae* should be submitted to the Director, S.A. Institute for Medical Research within 4 weeks of the appearance of this advertisement.

Applicants should indicate whether they wish to be considered for either post or only for the post to which their application refers.

Provincial Administration of the Cape of Good Hope

HOSPITALS DEPARTMENT

JOINT MEDICAL STAFF: VACANCIES

Applications are invited for the undermentioned vacant posts of medical practitioner on the Joint Medical Staff of the Groote Schuur Hospital.

The conditions of service are prescribed in terms of the Hospital Board Ordinance No. 19 of 1941, as amended, and the regulations framed thereunder.

Applications should be submitted (in duplicate) on the prescribed form, Staff 23, which is obtainable from the Director of Hospital Services, P.O. Box 2060, Provincial Building, Wale Street, Cape Town, or from the Medical Superintendent of any Provincial Hospital or Secretary of any School Board in the Cape Province.

The closing date for the receipt of applications is 20 June 1953, and applications should be addressed to the Medical Superintendent, Groote Schuur Hospital, Observatory, Cape.

The successful applicants will be required to assume duty on 1 August 1953.

The successful applicants will be available for circulation among the different Departments at the discretion of the Medical Superintendent.

Department	*Post*
Medicine	Medical practitioner, Grade C (1 post)
Paediatrics	Medical practitioner, Grade C (1 post)
Ophthalmology	Medical practitioner, Grade C (1 post)
Radio-diagnosis	Medical practitioner, Grade C (1 post)

The emoluments of the Grade C post are £1,000 × £50—£1,200 per annum.

In addition a cost-of-living allowance is payable at present at the rate of £320 p.a. to married officials and £100 p.a. to single officials.

Qualifications Required

Not less than 5 years' experience after graduation or 4 years' experience after registration, of which not less than 3 years shall have been spent in training as a specialist in the specialities included in the division in which the vacancy occurs.

(12048)

City of Port Elizabeth

VACANCIES: MEDICAL PRACTITIONERS (INTERNSHIP)

ELIZABETH DONKIN HOSPITAL FOR INFECTIOUS DISEASES

Applications are invited from male or female medical practitioners for the above-mentioned posts at a salary of £240 per annum plus cost-of-living allowance and free board and lodging.

Applicants must apply immediately to the undersigned and duties to commence on or about 1 July 1953.

Municipal Notice No. 145, 6 May 1953 (0401/070).

G. H. Brewer
Town Clerk

Assistant Wanted

Afrikaans-speaking bilingual assistant with good personality for partnership practice of 5 in pleasant town in Transvaal. All hospital facilities, opportunity to gain all-round experience.

Starting salary £70 per month, plus transport allowance, 6 weeks annual vacation, prospect of partnership. Interview essential. Reply, giving particulars, to 'A. Q. S.', P.O. Box 643, Cape Town.

Provinsiale Administrasie van die Kaap die Goeie Hoop

HOSPITAALDEPARTEMENT

GESAMENTLIKE MEDIESE PERSONEEL

Aansoeke word ingewag om die ondergenoemde vakante poste van mediese praktisyn by die gesamentlike mediese personeel van die Groote Schuur Hospitaal.

Die diensvoorwaardes is voorgeskryf en is onderworpe aan die Hospitaalraaddiens-ordonnansie, nr. 19 van 1941, soos gewysig, en die regulasies wat ingevolge daarvan opgestel is.

Aansoeke moet gestuur word (in duplo) op die voorgeskrewe vorm, Staf 23, wat verkrygbaar is by die Direkteur van Hospitaaldienste, Posbus 2060, Provinsiale Gebou, Waalstraat, Kaapstad, of by die Mediese Superintendent van enige provinsiale hospitaal of by die sekretaris van enige skoolraad in die Kaapprovinsie.

Die sluitingsdatum vir die ontvangs van aansoeke is 20 Junie 1953, en ingevulde aansoekvorms moet aan die Mediese Superintendent, Groote Schuur Hospitaal, Observatory, Kaap, gepos word.

Die gekose applikante sal diens op 1 Augustus 1953, moet aanvaar.

Die Mediese Superintendent kan sy diskresie gebruik en die persone wat aangestel word beskikbaar stel vir die verskillende departemente van die hospitaal.

Departement	*Pos*
Medisyne	Mediese praktisyn, Graad C (1 pos)
Pediatrie	Mediese praktisyn, Graad C (1 pos)
Ophthalmologie	Mediese praktisyn, Graad C (1 pos)
Radio-diagnose	Mediese praktisyn, Graad C (1 pos)

Die salarisse vir Graad C is £1,000 × £50—£1,200 per jaar.

Behalwe bogenoemde salarisse word daar nog 'n duurtetoeslag van £320 per jaar aan getroude en £100 per jaar aan ongetroude amptenare betaal.

Vereiste Kwalifikasies

Nie minder as 5 jaar ondervinding na ontvangs van graad of 4 jaar ondervinding na registrasie waarvan nie minder as 3 jaar opleiding voltooi is as spesialis in die besondere departement waarin die vakante pos val nie.

(12048)

Vanderbijlpark Medical Benefit Fund

POST OF PART-TIME OPHTHALMIC SURGEON

Applications are invited from registered ophthalmic surgeons for the above position.

The successful applicant will be remunerated on a *per capita* basis, in accordance with the fees laid down by the Contract Practice Committee of the Medical Association of South Africa. The membership of the above Fund at the present time is 5,200. In addition, the payment of transport costs will be decided upon by mutual agreement.

Applications giving full details of qualifications and experience should reach the undersigned P.O. Box 1, Vanderbijlpark, not later than Tuesday, 2 June 1953.

Application forms will be forwarded to *bona fide* applicants on written application to the undersigned.

H. A. Lambrechts
30 April 1953 *Secretary*

(Before submitting applications for this post, practitioners are advised to communicate with the Honorary Secretary, Southern Transvaal Branch, M.A.S.A., 5 Esselen Street, Johannesburg.—*Assistant Secretary.*)

Assistant Required

Professional assistant required, full time or part-time, male or female. Industrial practice, Cape Town. Duties to commence on 1 July 1953. Write 'A. Q. G.', P.O. Box 643, Cape Town.

Printed by Cape Times Ltd., Parow, and Published by the Proprietors, THE MEDICAL ASSOCIATION OF SOUTH AFRICA, MEDICAL HOUSE, 35 Wale Street, Cape Town. P.O. Box 643. Telephone 2-6177. Telegrams: 'Medical'